Indiana Department of Transportation

County Rush Route County Road 1100 N over Six Mile Creek Des. No. 1802929

FHWA-Indiana Environmental Document

CATEGORICAL EXCLUSION / ENVIRONMENTAL ASSESSMENT FORM

GENERAL PROJECT INFORMATION

Road No./County:	County Road (CR) 1100 North/Rush County
Designation Number:	1802929
Project Description/Termini:	The project involves the replacement of Rush County Bridge No. 1 carrying CR 1100 North over Six Mile Creek, approximately 0.01 mile west of CR 900 West. The project includes 249 feet of road work to the west approach, 128 feet of bridge work, 115 feet of road work to the east approach, and 50 feet of incidental work at the western terminus for a total project length of 542 feet (0.10 mile).

After completing this form, I conclude that this project qualifies for the following type of Categorical Exclusion (FHWA must review/approve if Level 4 CE):

X	**Categorical Exclusion, Level 2** – The proposed action meets the criteria for Categorical Exclusion Manual Level 2 - table 1, CE Level Thresholds. Required Signatories: ESM (Environmental Scoping Manager)
	Categorical Exclusion, Level 3 – The proposed action meets the criteria for Categorical Exclusion Manual Level 3 - table 1, CE Level Thresholds. Required Signatories: ESM, ES (Environmental Services Division)
	Categorical Exclusion, Level 4 – The proposed action meets the criteria for Categorical Exclusion Manual Level 4 - table 1, CE Level Thresholds. Required Signatories: ESM, ES, FHWA
	Environmental Assessment (EA) – EAs require a separate FONSI. Additional research and documentation is necessary to determine the effects on the environment. Required Signatories: ES, FHWA

Note: For documents prepared by or for Environmental Services Division, it is not necessary for the ESM of the district in which the project is located to release for public involvement or sign for approval.

Approval _____ _____ _____ _____
ESM Signature Date ES Signature Date

_____ _____
FHWA Signature Date

Release for Public Involvement

N/A _____ _____ 3/1/2021
ESM Initials Date ES Initials Date

Certification of Public Involvement _____ _____
Office of Public Involvement Date

Note: Do not approve until after Section 106 public involvement and all other environmental requirements have been satisfied.

INDOT ES/District Env.
Reviewer Signature: _____ Date: _____

Name and Organization of CE/EA Preparer: Brittney Layton, M.A./Butler, Fairman, & Seufert, Inc.

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Part I - PUBLIC INVOLVEMENT

Every Federal action requires some level of public involvement, providing for early and continuous opportunities throughout the project development process. **The level of public involvement should be commensurate with the proposed action.**

	Yes	No
Does the project have a historic bridge processed under the Historic Bridges PA*?		X
If No, then:		
Opportunity for a Public Hearing Required?	X	

**A public hearing is required for all historic bridges processed under the Historic Bridges Programmatic Agreement between INDOT, FHWA, SHPO, and the ACHP.*

Discuss what public involvement activities (legal notices, letters to affected property owners and residents (i.e. notice of entry), meetings, special purpose meetings, newspaper articles, etc.) have occurred for this project.

Remarks: Notice of Entry letters were mailed to potentially affected property owners near the project area on January 13, 2020, notifying them about the project and that individuals responsible for land surveying and field activities may be seen in the area. A sample copy of the Notice of Entry letter is included in Appendix G, page 1.

The project will meet the minimum requirements described in the current *Indiana Department of Transportation (INDOT) Public Involvement Manual* which requires the project sponsor to offer the public an opportunity to submit comment and/or request a public hearing. Therefore, a legal notice will appear in a local publication contingent upon the release of this document for public involvement. This document will be revised after the public involvement requirements are fulfilled.

Public Controversy on Environmental Grounds	Yes	No
Will the project involve substantial controversy concerning community and/or natural resource impacts?		X

Remarks: At this time, there is no substantial public controversy concerning impacts to the community or to natural resources.

Part II - General Project Identification, Description, and Design Information

Sponsor of the Project: Rush County Board of Commissioners INDOT District: Greenfield

Local Name of the Facility: CR 1100 North/Rush County Bridge No. 1

Funding Source (*mark all that apply*): Federal [X] State [ ] Local [X] Other* [ ]

*If other is selected, please indentify the funding source: _____

PURPOSE AND NEED:

Describe the transportation problem that the project will address. The solution to the traffic problem should NOT be discussed in this section. (Refer to the CE Manual, Section IV.B.2. Purpose and Need)

Need

The need for this project stems from the deteriorated condition of Rush County Bridge No. 1 carrying CR 1100 North over Six Mile Creek. The bridge was constructed in 1992 and has deteriorated to the point where significant work is required to provide a safe crossing. According to the most recent Indiana Department of Transporation (INDOT) Bridge Inspection Report, the structure is in poor condition, with various bridge elements displaying conditions ranging from fair to poor (see Appendix I, pages 8 to 11). The deck, superstructure, and substructure each received a rating of 5 (out of 9), respectively, indicating fair condition. The report information for these elements is provided in the bulleted lists below.

The superstructure exhibited:

- flaking,
- rust,
- pitting,
- minor deflections.

The deck displayed:

- surface rust,
- seepage,
- flaking paint,
- flaking rust on deck panel and bracing.

The substructure presented:

- rust,
- flaking paint,
- surface rust on piles,
- skewed Bent 2,
- broken welds at cross-bracing.

The wearing surface and approaches both received ratings indicating poor condition. The wearing surface was given a 4 (out of 9) rating due to rutting and seepage concerns. The approaches were given a rating of 3 (out of 9) rating due to cracks and settling, in addition to a curve on the east approach. The inspection report also noted damage to the guardrail on the southeast approach.

Along the eastern approach of Rush County Bridge No. 1, CR 1100 N curves towards the bridge, preventing drivers from being able to see adequately ahead of the vehicle as they progress around the turn (Appendix B, page 3). According to the Abbreviated Engineering Assessment (Appendix I, pages 14 to 16), the sight-distance issues are a result of the curved alignment of the roadway approaching the bridge from the east. The existing guardrail at the intersection of CR 1100 North and CR 900 West has been hit by vehicles numerous times (Appendix I, page 16). A secondary need for the project is to address the sight-distance concerns on the east approach of CR 1100 North.

Purpose

The purpose of this project is to have a structure with condition ratings of 7 (good condition), or better, at the crossing of CR 1100 North over Six Mile Creek. The secondary purpose of this project is to improve the sight-distance concerns along CR 1100 between Rush County Bridge No. 1 and CR 900 West.

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PROJECT DESCRIPTION (PREFERRED ALTERNATIVE):

County: Rush Municipality: N/A

Limits of Proposed Work: The project involves the replacement of Rush County Bridge No. 1 carrying CR 1100 North over Six Mile Creek, approximately 0.01 mile west of CR 900 West. The project includes 249 feet of road work to the west approach, 128 feet of bridge work, 115 feet of road work to the east approach, and 50 feet of incidental work at the western terminus for a total project length of 542 feet (0.10 mile).

Total Work Length: 0.10 Mile(s) Total Work Area: N/A Acre(s)

	Yes[1]	No
Is an Interchange Modification Study / Interchange Justification Study (IMS/IJS) required?		X
If yes, when did the FHWA grant a conditional approval for this project?	Date:	

[1]*If an IMS or IJS is required; a copy of the approved CE/EA document must be submitted to the FHWA with a request for final approval of the IMS/IJS.*

In the remarks box below, describe existing conditions, provide in detail the scope of work for the project, including the preferred alternative. Include a discussion of logical termini. Discuss any major issues for the project and how the project will improve safety or roadway deficiencies if these are issues.

Location:

The project is located on County Road 1100 North over Six Mile Creek immediately west of the intersection with CR 900 West. The project is also located in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North on the United States Geological Survey (USGS) Knightstown, Indiana Quadrangle (Appendix B, page 2).

Existing Conditions:

CR 1100 North, a Local Rural Road, is a bituminous surface roadway with two (2) 8-foot-wide through lanes adjoined by grassy shoulders approximately 0.5-feet-wide. No sidewalks, medians, or curbs and gutters are present. Overhead utilities are located along the south side of the roadway. Water resources within the study limits include one stream, Six Mile Creek (Appendix F, page 4). The bridge is in a rural area consisting of agricultural and residential land uses. The immediate northwest and northeast quadrants of the bridge are forested while the immediate southeast quadrant consists of non-forested fallow field; the immediate southwest quadrant consists of an agricultural field. All of the banks along Six Mile Creek within the project area are forested beginning at the waters' edge and continuing upslope to the top-of-bank.

CR 900 West, a Local Rural Road, , is a bituminous surface roadway with two (2) 8.5-foot-wide through lanes adjoined by grassy shoulders approximately 0.5-feet-wide. Overhead utilities are located along the east side of the roadway.

The existing Rush County Bridge No. 1 (National Bridge Inventory (NBI) Number: 70-00001), carrying CR 1100 North over Six Mile Creek, is a 3-span steel, multi-beam bridge constructed in 1992 with a maximum span of 59 feet and an overall width of 22.5 feet, with a structure length of 94.8 feet. The structure consists of two (2) 10-foot 6-inch-wide through lanes with no shoulders, curbs, or sidewalks. Additionally, steel railroad flatcars compose part of the superstructure. The bridge has an unlimited vertical clearance.

The bridge is in a deteriorating condition currently. According to the inspection report completed by INDOT in 2019 (Appendix I, pages 8 to 11) there is flaking, rust, pitting, minor deflections, and minor section loss throughout the existing structure. On the superstructure, the bridge deck and wearing surface both exhibit rutting and seepage. The substructure has broken welds at the cross-bracing while the approaches are in need of a high level of corrective action. Along the eastern approach, there is a curve on CR 1100 North causing sight distance issues (Appendix B, page 3). On the southeastern approach, there is damage to the guardrail. The channel presents with bank slump, widespread minor

damage, and minor drift at Bent 2. Further, the substructure is not skewed with Six Mile Creek, which is leading to significant scour occurring with the substructure.

Preferred Alternative:

The preferred alternative includes removing the existing three (3) span, steel multi-beam bridge and replacing it with a three (3) span, continuous, composite prestressed concrete box beam bridge on an alignment that is shifted to the north (Appendix B, pages 8 to 14). The new bridge will be placed on a 25-degree left skew over Six Mile Creek such that the center point of the new bridge will be located approximately 20 feet north of the center point of the existing bridge. With this alignment, the proposed structure aligns the piers and end bents with the stream. This will allow the water to flow parallel with the structures, decreasing the potential for scour. The vertical alignment of the new bridge will be similar to the existing bridge. The new bridge will be 130 feet in length and will consist of two (2) end spans at 42-feet in length and one (1) center span at 44-feet in length. The new bridge will have a clear roadway width of 24-feet, consisting of two (2) 9-foot-wide through lanes bordered by 3-foot-wide shoulders. Metal bridge railings, approximately 2-feet 9-inches in height, will be installed along both sides of the structure. No sidewalks or curbs will be constructed as part of this project.

The horizontal alignment of CR 1100 North will be shifted to the north beginning approximately 250 feet west of the center point of the existing bridge. The proposed roadway centerline will have a maximum shift to the north of 20 feet (at the bridge) when compared to the existing roadway centerline. To eliminate the curve east of the bridge and thereby improve the sight-distance concerns, the centerline of CR 1100 North will intersect CR 900 West approximately 15 feet north of its current intersection point. By curving CR 1100 North to the north as proposed, the alignment will provide a better orientation at the intersection with CR 900 West. The vertical alignment of CR 1100 North will be similar to the existing conditions.

Guardrail with OS (Outside Shoulder) End Treatments will be installed along CR 1100 North approaching the bridge for approximately 100 feet in the northwest and southwest quadrants, and for approximately 44 feet and 82 feet in the northeast and southeast quadrants, respectively. Further, the approaches will have full-depth pavement replacement along CR 1100 North for approximately 250 feet west and 115 feet east of the bridge in order to accommodate the grade change at the bridge with an additional 50 feet of incidental work beyond that on the western end. The total project length is approximately 0.10 mile total. No permanent lighting will be installed nor will temporary lighting be used during construction. There will also be approximately 50 feet of full depth pavement replacement along CR 900 West to tie into the new Rush County Bridge No. 1 approach.

Approximately 0.5 acre of tree clearing will occur along the north side of CR 1100 North as a result of the proposed shift in horizontal alignment.. Approximately 0.15 acre of roadside mowed grass habitat will be impacted by the project. Excavation up to 2 feet in depth will occur for channel clearing along the west bank above the ordinary high water mark (OHWM). Additional excavation will occur on both stream banks for riprap placement. The riprap will be placed on the new 2:1 spill slopes over geotextile fabric approximately 18 inches deep on both banks for scour protection. Piles will be driven for each pier; however, wet construction will still be required for the mudsill for each pier. Both piers are being placed at the edge of the existing creek. It is anticipated that the contractor will construct each pier from the nearby bank, so temporary causeways will not be necessary.

The preferred maintenance of traffic (MOT) plan will be a road closure with a detour. For motorists travelling east to west, the detour route will utilize CR 980 West, US 40, CR 900 West, CR 1200 North, CR 800 West, and CR 1100 North, adding up to approximately 4.5 miles and 8 minutes travel timeto a through trip. For motorists travelling north to south, the detour route will involve utilizing CR 800 West, 1200 North, and CR 900 West, adding up to approximately 2.9 miles and 6 minutes travel time to a through trip (Appendix B, page 7). The detour will be in place approximately 6 months.

From the center point of the CR 1100 North intersection with CR 900 West, the project will extend approximately 550 feet west and approximately 20 feet east along CR 1100 North, and approximately 45 feet north and 35 feet south along CR 900 West. The termini are logical because they encompass only the area necessary to replace the bridge and end where the new bridge and approaches can tie into the existing pavement. This project has independent utility as it

addresses the specific bridge conditions and sight distance concerns occurring at this location, and doesn't rely on another project to meet its Purpose and Need. The project is scheduled to let in fall 2023 with construction anticipated to begin in spring 2024.

At the beginning of the environmental documentation, the proposed design originally included curving the alignment of CR 1100 North by approximately 85 feet northward towards CR 900 West. This would have required approximately 1.7 acres of permanent right-of-way (ROW) aquisition, including 0.7 acres of bat habitat requiring mitigation. Early Coordination Letters were sent out with this original scope. See Alternative Two in Other Alternatives Considered Section of this CE Document for more information.

The preferred alternative will meet the stated purpose and need of the project by addressing the deteriorated condition of Rush County Bridge No. 1, as well as the current sight-distance conditions along CR 1100 North east of the bridge.

OTHER ALTERNATIVES CONSIDERED:

Describe all discarded alternatives, including the Do-Nothing Alternative and an explanation of why each discarded alternative was not selected.

Do-Nothing Alternative:
One alternative, do nothing, was considered. This alternative would involve no cost or environmental impacts; however, this alternative would not meet the purpose and need of the project, which is to address the deteriorating condition of the bridge. Therefore, the Do-Nothing Alternative does not meet the project's stated purpose and need and was dismissed from further consideration.

Alternative Two: Moving Rush County Bridge No. 1 Centerline by 85'
A second alternative, which was the original alternative considered, would have curved the alignment of CR 1100 North by approximately 85 feet northward to CR 900 West. This would have required approximately 1.7 acres of permanent right-of-way (ROW), including 0.7 acres of bat habitat requiring mitigation. The project sponsors did not want to proceed with this alternative but pursue a more conservative approach with less impacts. Alternative Two: Moving Rush County Bridge No. 1's Centerline by 85', would meet the project's stated purpose and need. However, it was dismissed from further consideration due to environmental impact considerations.

Alternative Three: Rehabilitate Rush County Bridge No. 1
A third alternative was considered that would have involved rehabilitating sections of Rush County Bridge No. 1. The steel car carriers composing part of the superstructure were installed in the mid-1990's as a temporary solution to repair the deck. As a result, it is not prudent to rehabilitate these carriers as they were used in those days as temporary solutions to fix a bridge deck. In addition, the existing substructure is not skewed to align with Six Mile Creek. As a result, rehabilitating this structure would not reduce the scour that this structure is experiencing. Therefore, Altnerative Three: Rehabiliate Rush County Bridge No. 1 does not meet the project's stated purpose and need and was dismissed from further consideration.

Alternative Four: Curving Rush County Bridge No. 1 Southwards
A fourth alternative was considered that would have curved Rush County Bridge No. 1 southwards, thereby straightening out CR 1100 North. However, doing so would greatly impact Rush County Bridge No. 4 which carries CR 900 West over Charlotte's Brook, located immediately adjacent to the project area below the southeast quadrant (see the "Design Criteria for Bridges" section of this CE document for more information on Rush County Bridge No. 4). In addition to increasing stream, wetland, and tree clearing impacts, by repositioning Rush County Bridge No. 1 to the south, CR 1100 North would intersect with Rush County Bridge No. 4 over Charlotte's Brook. This would increase the velocity of the water causing further scouring to Rush County Bridge No. 4. Alternative Four: Curving Rush County Bridge No. 1 Southwards would meet the project's stated purpose and need. However, it was dismissed from further consideration because it would result in additional environmental impacts including wetland, tree clearing impacts, as well as impacts to the velocity of the stream and additional impacts to Rush County Bridge No. 4.

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The Do Nothing Alternative is not feasible, prudent or practicable because (*Mark all that apply*):

It would not correct existing capacity deficiencies;	
It would not correct existing safety hazards;	
It would not correct the existing roadway geometric deficiencies;	X
It would not correct existing deteriorated conditions and maintenance problems; or	X
It would result in serious impacts to the motoring public and general welfare of the economy.	
Other (Describe)	

ROADWAY CHARACTER: CR 1100 North

Functional Classification: Local Rural Road
Current ADT: 672 VPD (2017) Design Year ADT: 879 VPD (2044)
Design Hour Volume (DHV): N/A Truck Percentage (%) 5
Designed Speed (mph): 30 Legal Speed (mph): 30

	Existing		Proposed	
Number of Lanes:	2 @ 8.5 feet		2 @ 9 feet	
Type of Lanes:	2 through lanes		2 through lanes	
Pavement Width:	18	ft.	24	ft.
Shoulder Width:	0.5 (grassy)	ft.	3 (paved)	ft.
Median Width:	N/A	ft.	N/A	ft.
Sidewalk Width:	N/A	ft.	N/A	ft.

Setting:		Urban		Suburban	X Rural
Topography:	X	Level		Rolling	Hilly

If the proposed action has multiple roadways, this section should be filled out for each roadway.

ROADWAY CHARACTER: CR 900 West

Functional Classification: Local Rural Road
Current ADT: 672 VPD (2017) Design Year ADT: 879 VPD (2044)
Design Hour Volume (DHV): N/A Truck Percentage (%) 5
Designed Speed (mph): 45 Legal Speed (mph): 45

	Existing		Proposed	
Number of Lanes:	2 @ 8.5 feet		2 @ 9 feet	
Type of Lanes:	2 through lanes		2 through lanes	
Pavement Width:	18	ft.	24	ft.
Shoulder Width:	0.5 (grassy)	ft.	3 (gravel)	ft.
Median Width:	N/A	ft.	N/A	ft.
Sidewalk Width:	N/A	ft.	N/A	ft.

Setting:		Urban		Suburban	X Rural
Topography:	X	Level		Rolling	Hilly

If the proposed action has multiple roadways, this section should be filled out for each roadway.

DESIGN CRITERIA FOR BRIDGES:

Structure/NBI Number(s): Rush County Bridge No. 1/70-00001 Sufficiency Rating: 47.2/BIAS 2019
(Rating, Source of Information)

	Existing		Proposed	
Bridge Type:	3-span/Steel/Multi-Beam/Stringer		Continuous Composite Prestressed Concrete Box Beam	
Number of Spans:	3		3	
Weight Restrictions:	15	Ton	25	ton
Height Restrictions:	N/A	ft.	N/A	ft.
Curb to Curb Width:	21.0	ft.	24.0	ft.
Outside to Outside Width:	22.5	ft.	24.5	ft.
Shoulder Width:	1.5	ft.	3.0	ft.
Length of Channel Work:			30	ft.

Describe bridges and structures; provide specific location information for small structures.

Remarks:

The existing Rush County Bridge No. 1 (NBI: 70-00001) over Six Mile Creek is a two-lane, 3-span steel, multi-beam bridge constructed in 1992 with a maximum span of 59 feet, an overall length of 94.8 feet, and an overall width of 22.5 feet. On the most recent INDOT Bridge Inspection, dated May 14, 2019, both the superstructure and substructure were given a condition rating of 5 (out of 9) indicating fair condition, for rusting, pitting, and flaking paint. The wearing surface was given a condition rating of 4 (out of 9), indicating poor condition, due to rutting and seepage.

An additional structure, Rush County Bridge No. 70-00004 (NIB No. 70-00004), is located on CR 900 West adjacent to, but outside of, the project area, situated immediately south of the intersection of CR 1100 North and CR 900 West. The intersection of CR 1100 North and CR 900 West forms a standard 3-leg "T" intersection with CR 1100 North ending at CR 900W. Rush County Bridge No. 4 is immediately south of the intersection with CR 1100 North. No work will be done on this bridge. According to the INDOT Bridge Inspection Report dated April 10, 2019, the deck, wearing surface, and superstructure have all been given a condition rating of 6, indicating a satisfactory condition while the substructure has been given a condition rating of 7, indicating good condition (Appendix I, pages 17 to 18).

No other bridges or structures are present or adjacent to the project area.

	Yes	No	N/A
Will the structure be rehabilitated or replaced as part of the project?	X		

If the proposed action has multiple bridges or small structures, this section should be filled out for each structure.

MAINTENANCE OF TRAFFIC (MOT) DURING CONSTRUCTION:

	Yes	No
Is a temporary bridge proposed?		X
Is a temporary roadway proposed?		X
Will the project involve the use of a detour or require a ramp closure? (describe in remarks)	X	
Provisions will be made for access by local traffic and so posted.		X
Provisions will be made for through-traffic dependent businesses.		X
Provisions will be made to accommodate any local special events or festivals.		X
Will the proposed MOT substantially change the environmental consequences of the action?		X

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Is there substantial controversy associated with the proposed method for MOT? [ ] [X]

Remarks:

The MOT plan for the project will require a detour. For motorists traveling east/west, the detour route would involve utilizing CR 980 West, US 40, CR 900 West, CR 1200 North, CR 800 West, and CR 1100 North, adding up to approximately 4.5 miles and 8 minutes travel to a through trip (Appendix B, page 7). For motorists traveling north/south, the detour route would involve utilizing CR 1100 North, CR 800 West, and CR 1200 North, adding up to approximately 2.9 miles and 6 minutes travel to a through trip (Appendix B, page 7). The detour will be in place approximately 6 months.

As the project is located in a rural agricultural and residential area, provisions are not being made for through-traffic dependent businesses. However, no residents or businesses will be restricted from their properties or customers as a detour will be provided that allows access to all properties. No festivals or community events will be disrupted by the project according to the Rush County Chamber of Commerce website was reviewed on July 10, 2020 by BF&S (http://rushcounty.com/).

The closures/lane restrictions will pose a temporary inconvenience to traveling motorists (including school buses and emergency services); however, no significant delays are anticipated and all inconveniences will cease upon project completion. Delays would occur during construction but will cease with project completion.

ESTIMATED PROJECT COST AND SCHEDULE:

Engineering: $ 206,360 (FY 2020) Right-of-Way: $ 100,000 (FY 2022) Construction: $ 1,890,000 (FY 2024)

Anticipated Start Date of Construction: Spring 2024

Date project incorporated into STIP July 25, 2019. Fiscal Year (FY) 2020-2024 Indiana STIP, approved, Amendment 20-01

	Yes	No
Is the project in an MPO Area?	[ ]	[X]

If yes,

Name of MPO N/A

Location of Project in TIP N/A

Date of incorporation by reference into the STIP N/A

RIGHT OF WAY:

Land Use Impacts	Amount (acres) Permanent	Temporary
Residential	0.00	0.00
Commercial	0.00	0.00
Agricultural	0.00	0.00
Forest	0.50	0.00
Wetlands	0.00	0.00
Other: roadside mowed grass	0.15	0.00
Other: private drive in NW quadrant of CR 1100 North/CR 900 West	0.00	0.08
TOTAL	0.65	0.08

Describe both Permanent and Temporary right-of-way and describe their current use. Typical and Maximum right-of-way widths (existing and proposed) should also be discussed. Any advance acquisition or reacquisition, either known or suspected, and there impacts on the environmental analysis should be discussed.

Remarks: The project requires approximately 0.65 acre of permanent right-of-way (ROW) acquisition with 0.15 acre coming from roadside mowed grass and 0.5 acre coming from forested areas.

The project also requires approximately 0.08 acre of temporary ROW in the northwest corner of the CR 1100 North/CR 900 West intersection for private drive reconstruction.

The existing width of ROW along CR 1100 North is approximately 9 feet on either side of the roadway centerline for a total width of 18 feet. The proposed width of ROW along CR 1100 North varies from 25 feet on both north and south sides, respectively, to approximately 55 feet on the north side and 25 feet on the south side at the bridge for a maximum width of 80 feet total.

If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately.

Part III – Identification and Evaluation of Impacts of the Proposed Action

SECTION A – ECOLOGICAL RESOURCES

	Presence	Impacts Yes	Impacts No
Streams, Rivers, Watercourses & Jurisdictional Ditches	X	X	
Federal Wild and Scenic Rivers			
State Natural, Scenic or Recreational Rivers			
Nationwide Rivers Inventory (NRI) listed			
Outstanding Rivers List for Indiana			
Navigable Waterways			

Remarks: Based on a desktop review, a site visit on August 29, 2019 by Butler, Fairman, & Seufert, Inc. (BF&S), the aerial map of the project area (Appendix B, page 3), and the water resources map in the Red Flag Investigation (RFI) report (Appendix E, page 7), there are seven (7) rivers and streams located within the 0.5 mile search radius. There are three (3) streams present within or adjacent to the project area. Six Mile Creek is located within the project area; Charlotte's Brook and UNT to Charlotte's Brook are located adjacent to,

but outside of, the project area. Approximately 30 linear feet (LFT) of impacts are expected to occur below the OHWM of Six Mile Creek.

No Federal, Wild and Scenic Rivers; State Natural, Scenic, and Recreational Rivers; Outstanding Rivers for Indiana; navigable waterways; or National Rivers Inventory waterways are present in the project area.

Six Mile Creek

Six Mile Creek intersects the project area. It is classified as riverine, intermittent, streambed, seasonally flooded, excavated (R4SBCx). It flows north to south (Appendix B, page B-3). Six Mile Creek has an approximate 52-foot bankfull width and approximate average of 3.2-foot bankfull depth. During the site visit conducted by BF&S, the OHWM depth is approximately 1.8 feet and the OHWM width is approximately 35 feet. The substrate of Six Mile Creek is primarily sand/loose rock. Six Mile Creek would be classified as being of relatively good quality due to the presence of riffles and pools and meanders, and an intact forested riparian corridor and relatively wide floodplain. Six Mile Creek should be considered a "Waters of the United States" due to being a blue-line feature (jurisdictional waterway) with an OHWM (see the *Waters of the U.S. Determination Report*, Appendix F, page 3). There are approximately 100 LFT of this stream located within the study area.

Six Mile Creek will have approximately 30 LFT of permanent impacts below the OHWM due to pier construction. No riprap installation or channel clearing will occur below the OHWM. Piles will be driven for each pier; however, wet construction will still be required for the mudsill for each pier. It is anticipated that the contractor will be able to build each pier from the nearby bank, so temporary causeways and cofferdams are not anticipated. Therefore, no other permanent or temporary impacts below the OHWM to Six Mile Creek are anticipated.

Excavation up to 2 feet in depth will occur for channel clearing along the west bank above the OHWM as well as along both stream banks for riprap placement. The riprap will be placed on the new 2:1 spill slopes over geotextile fabric approximately 18 inches deep on both banks for scour protection. No other impacts are anticipated.

Six Mile Creek is listed as impaired for *E. coli*. Workers who are working in or near water with *E. coli* should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

A *Waters of the U.S. Determination Report* was completed for the project on July 24, 2020. Please refer to Appendix F for the *Waters of the U.S. Determination Report.* It was determined that one (1) stream, Six Mile Creek, is located within the project area and should be considered "Waters of the U.S." The report also provides detailed findings for two additional streams located adjacent to the project area (Charlotte's Brook and UNT to Charlotte's Brook); however, these streams have been determined to be located outside of the project area and, therefore, are not detailed here. The U.S. Army Corps of Engineers (USACE) makes all final determinations regarding jurisdiction.

Early Coordination

Early coordination letters were sent on April 3, 2020 to the USACE, the United States Fish & Wildlife Service (USFWS), and the Indiana Department of Natural Resources (IDNR) (Appendix C, pages 1 to 3).

The USACE did not respond.

An automatic Online Roadway Construction letter was generated from Indiana Department of Environmental Management (IDEM) on April 3, 2020, via their online project forum (Appendix C, pages 6 to 14). IDEM did not respond with any specific recommendations regarding the project nor are there any specific IDEM commitments.

The USFWS responded on April 6, 2020, with recommendations to avoid or minimize impacts to the river

channel (Appendix C, pages 26 to 27). Recommendations include restricting work to the minimum necessary for installing the bridge, restricting low-water work, minimizing the use of hard armoring on the stream banks, implementing erosion and sediment control devices, avoiding impacts to the active thalweg, fish spawning season restrictions, and wildlife crossing considerations. USFWS provided standard recommendations consistent with their Interim Policy recommendations.

The IDNR responded on May 1, 2020, with recommendations to avoid or minimize impacts to the stream, including similar recommendations from the USFWS, for bank stabilization, riparian habitat mitigation, avoidance of the use of temporary causeways and cofferdams, and coordination with IDEM and USACE regarding stream impacts. IDEM and USACE will be contacted during the permitting phase of the project. (Appendix C, pages 15 to 18).

All applicable agency recommendations are included in the *Environmental Commitments* section of this CE document.

Other Surface Waters	**Presence**	**Impacts**	
		Yes	**No**
Reservoirs	X		X
Lakes			
Farm Ponds			
Detention Basins			
Storm Water Management Facilities			
Other:			

Remarks:

Based on a desktop review, a site visit on August 29, 2019 by BF&S, the aerial map of the project area (Appendix B, page 3), and the water resource map in the RFI report (Appendix E, page 7), there are three (3) other surface waters within the 0.5 mile search radius. No other surface waters are present within the project area; therefore, no impacts are expected.

A *Waters of the U.S. Determination Report* was completed for the project on July 24, 2020. Please refer to Appendix F for the *Waters of the U.S. Determination Report*. It was determined that no surface waters or open bodies of water were identified within the project study area. The USACE makes all final determinations regarding jurisdiction.

Early Coordination

Early coordination letters were sent on April 3, 2020 to the USACE, the USFWS, and the IDNR (Appendix C, pages 1 to 3).

The USACE did not respond.

An automatic Online Roadway Construction letter was generated from IDEM on April 3, 2020, via their online project forum (Appendix C, pages 6 to 14). IDEM did not respond with any specific recommendations regarding the project nor are there any specific IDEM commitments.

The USFWS responded on April 6, 2020 with recommendations to avoid or minimize impacts to the surface waters (Appendix C, pages 26 to 27). Recommendations include restricting work to the minimum necessary for installing the bridge and restricting low-water work. .

The IDNR responded on May 1, 2020 with recommendations to avoid or minimize impacts to the surface waters, including that the bridge should span the entire channel (Appendix C, pages 15 to 18).

All applicable agency recommendations are included in the *Environmental Commitments* section of this CE document.

Indiana Department of Transportation

County Rush Route County Road 1100 N over Six Mile Creek Des. No. 1802929

	Presence	Impacts Yes	Impacts No
Wetlands			

Total wetland area: N/A acre(s) Total wetland area impacted: N/A acre(s)

(If a determination has not been made for non-isolated/isolated wetlands, fill in the total wetland area impacted above.)

Wetland No.	Classification	Total Size (Acres)	Impacted Acres	Comments
N/A	N/A	N/A	N/A	N/A

Wetlands (*Mark all that apply*)	Documentation	ES Approval Dates
Wetland Determination		
Wetland Delineation		
USACE Isolated Waters Determination		
Mitigation Plan		

Improvements that will not result in any wetland impacts are not practicable because such avoidance would result in (Mark all that apply and explain):

- Substantial adverse impacts to adjacent homes, business or other improved properties;
- Substantially increased project costs;
- Unique engineering, traffic, maintenance, or safety problems;
- Substantial adverse social, economic, or environmental impacts, or
- The project not meeting the identified needs.

Measures to avoid, minimize, and mitigate wetland impacts need to be discussed in the remarks box.

Remarks:

Based on a review of the National Wetlands Inventory (NWI) online mapper (https://www.fws.gov/wetlands/data/Mapper.html), a site visit on August 29, 2019 by BF&S, the USGS topographic map (Appendix B, page 2), and the water resource map in the RFI report (Appendix E, page 7), seven (7) wetlands are located within the 0.5 mile search radius. No wetlands are present within or adjacent to the project area; therefore, no impacts are expected.

A *Waters of the U.S. Determination Report* was completed for the project on July 24, 2020. Please refer to Appendix F for the *Waters of the U.S. Determination Report*. It was determined that no wetlands were identified within the project study area. The USACE makes all final determinations regarding jurisdiction.

Early Coordination

Early coordination letters were sent on April 3, 2020 to the USACE, the USFWS, and the IDNR (Appendix C, pages 1 to 3).

The USACE did not respond.

An automatic Online Roadway Construction letter was generated from IDEM on April 3, 2020, via their online project forum (Appendix C, pages 6 to 14). IDEM did not respond with any specific recommendations regarding the project nor are there any specific IDEM commitments.

The USFWS responded on April 6, 2020, with no specific recommendations to avoid or minimize impacts to wetlands (Appendix C, pages 26 to 27).

The IDNR responded on May 1, 2020, with recommendations to avoid or minimize impacts to the wetlands,

including that contacts may need to be made to the IDEM 401 program and USACE 404 program (Appendix C, pages 15 to 18). These agencies will be contacted during the permitting phase of the project.

All applicable agency recommendations are included in the *Environmental Commitments* section of this CE document.

	Presence	Impacts	
		Yes	No
Terrestrial Habitat	X	X	
Unique or High Quality Habitat			

Use the remarks box to identify each type of habitat and the acres impacted (i.e. forested, grassland, farmland, lawn, etc).

Remarks:

Based on a desktop review, a site visit on August 29, 2019 by BF&S, and the aerial map of the project area (Appendix B, page 3), there are residential/mowed grass and forested habitats present in the project area. The forested habitat includes green ash (*Fraxinus pennsylvanica*), American sycamore (*Platanus occidentalis*), eastern black walnut (*Junglans nigra*), and hackberry (*Celtis occidentalis*) in the tree stratum; silky dogwood (*Cornus amomum*) and boxelder maple (*Acer negundo*) in the sampling/shrub stratum; rough horsetail *(Equisetum hyemale),* Canada goldenrod (*Solidago canadensis*), common greenbrier *(Smilax rotundifolia),* common nettle (*Urtica dioica*), wild geranium (*Geranium maculatum*), dame's rocket (*Hesperis matronalis*), and Canadian wild ginger (*Asarum canadense*) in the herb strarum; Virginia creeper (*Parthenocissus quinquefolia*) and woody grape vine (*Vitis vulpine*) in the woody vine strarum.

Approximately 0.15 acre of roadside mowed grass habitat and approximately 0.5 acre of forested habitat will be impacted. The dominant tree species which will be affected include green ash (*Fraxinus pennsylvanica*), American sycamore (*Platanus occidentalis*), eastern black walnut (*Junglans nigra*), and hackberry (*Celtis occidentalis*). Avoidance alternatives would not be practicable while meeting the purpose and need of this project which is to address the deteriorated nature of Rush County Bridge No. 1, as well as the sight-distance issue east of the bridge caused by a curve along CR 1100 North. Mitigation is not anticipated to be required.

Early Coordination

Early coordination letters were sent on April 3, 2020 to the USACE, the USFWS, and the IDNR (Appendix C, pages 1 to 3).

The USACE did not respond.

The standard automatic response letter was generated for the IDEM Online Roadway Letter (Appendix C, pages 6 to 14). IDEM did not respond with any specific recommendations regarding the project nor are there any specific IDEM commitments.

The USFWS responded on April 6, 2020 with recommendations to avoid or minimize impacts to the terrestrial habitat (Appendix C, pages 26 to 27). Recommendations include minimizing impacts to terrestrial habitat by not clearing trees outside of the construction limits.

The IDNR responded on May 1, 2020 with recommendations to avoid or minimize impacts to the terrestrial habitats, including tree clearing minimization and revegetating all bare and disturbed areas (Appendix C, pages 15 to 18).

All applicable agency recommendations are included in the *Environmental Commitments* section of this CE document.

If there are high incidences of animal movements observed in the project area, or if bridges and other areas appear to be the sole corridor for animal movement, consideration of utilizing wildlife crossings should be taken.

Karst	**Yes**	**No**
Is the proposed project located within or adjacent to the potential Karst Area of Indiana?		X
Are karst features located within or adjacent to the footprint of the proposed project?		X
If yes, will the project impact any of these karst features?		

Use the remarks box to identify any karst features within the project area. (Karst investigation must comply with the Karst MOU, dated October 13, 1993)

Remarks:

Based on a desktop review, the project is located outside the designated karst region of Indiana as outlined in the October 13, 1993 Memorandum of Understanding (MOU). According to the topo map of the project area (Appendix B, page 2) and the RFI report (Appendix E), there are no karst features identified within or adjacent to the project area. In the early coordination response, the Indiana Geological Survey (IGS) did not indicate that karst features exist in the project area (Appendix C, pages 19 to 21). The IGS Environmental Assessment Report stated that the project area's geological hazards included moderate liquefaction potential and is within a floodway; the mineral resources include a high potential for bedrock and sand and gravel resources. In addition, petroleum exploration wells have been documented within half a mile of the project area. However, the petroleum well is located over 0.19 mile south of the project area, well outside of the construction limits (see the Red Flag Investigation in Appendix E). Response from the IGS has been communicated with the designer on July 8, 2020. No impacts are expected.

Threatened or Endangered Species	**Presence**	**Impacts** Yes	**Impacts** No
Within the known range of any federal species	X	X	
Any critical habitat identified within project area			
Federal species found in project area (based upon informal consultation)			
State species found in project area (based upon consultation with IDNR)			

	Yes	**No**
Is Section 7 formal consultation required for this action?		X

Remarks:

Based on a desktop review and the RFI report (Appendix E), completed by BF&S on March 9, 2020, the IDNR Rush County Endangered, Threatened and Rare (ETR) Species List has been checked and is included in Appendix E, page 9. The highlighted species on the list reflect the federal and state identified ETR species located within the county. According to the IDNR-DFW early coordination response letter dated May 1, 2020 (Appendix C, pages 15 to 18), the Natural Heritage Program's Database has been checked and no species or critical habitats are located within the project area. In addition, the IDNR stated in their early coordination letter that repairs to the bridge could affect nesting birds or roosting bats. Cliff and Barn Swallows, among other species, often nest on the underside of road bridges and many bat species roost in expansion joints and other concrete crevices on road bridges. IDNR recommends that no work occur during the nesting season (May 7 through September 7), or that the bridge be surveyed for nests during those dates prior to construction, in order to comply with the Migratory Bird Treaty Act (MBTA) of 1918. If nests are found with eggs, chicks, or parents actively tending to the nest (building the nest and visiting often), then repairs should be put on hold until the nesting cycle is completed (to fledging) or fails (by natural causes).

Further coordination with INDOT Ecology & Waterway Permitting occurred on December 18, 2020 (Appendix C, pages 54 to 55). Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures will be outlined in the "Potential Migratory Bird on Structure Unique Special

Provision". During both the INDOT Bridge Inspection on May 14, 2019 (Appendix I, pages 8 to 11) and the site visit conducted by BF&S on August 29, 2019 (Appendix C, pages 51 to 52), no evidence of bats nor birds were seen or heard under the bridge (Appendix I, page 12).

Per additional coordination with INDOT ESD (Appendix C, page 30), a USFWS Bridge/Structure Assessment shall take place no earlier than two (2) years prior to the start of construction. If construction will begin after August 29, 2021, an inspection of the structure by a qualified individual must be performed. Inspection of the structure should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. Also, a review of the USFWS Confidential Bat Database and coordination with INDOT ESD must occur prior to the Ready for Contracts (RFC) date to ensure that the species determination is still valid and no additional species have been listed that will require coordination. All recommendations have been listed in the *Environmental Commitments* section under the "Firm Commitments".

Bats, Programmatic Informal Consultation – Not Likely to Adversely Affect

Project information was submitted through the USFWS's Information for Planning and Consultation (IPaC) portal, and an official species list was generated (Appendix C, pages 31 to 36). The project is within range of the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*). No additional species were found within or adjacent to the project area other than the Indiana bat and northern long-eared bat

The project qualifies for the *Range-wide Programmatic Informal Consultation for the Indiana bat and NLEB*, dated May 2016 (revised February 2018), between FHWA, Federal Railroad Administration (FRA), Federal Transit Administration (FTA), and USFWS. An effect determination key was completed on December 9, 2020, and based on the responses provided, the project was found to "*may affect—but not likely to adversely affect"* the Indiana bat and/or the NLEB. INDOT reviewed and verified the effect finding on December 10, 2020, and requested USFWS's review of the finding (Appendix C, pages 37 to 50). No response was received from USFWS within the 14-day review period; therefore, it was concluded they concur with the finding Avoidance and Mitigation Measures (AMMs) are included as firm commitments in the *Environmental Commitments* section of this document.

When the new alignment for the proposed bridge was originally designed, it called for the removal of approximately 1.7 acres of trees, with approximately 0.7 acre of tree removal occurring between 100 to 300 feet from the roadway. Per coordination with the USFWS, this tree removal required mitigation to offset the potential impact to bat habitat. However, as the design progressed, the scope was reduced to the present alignment with the more conservative approach. With the new design, re-coordination occurred (see above) and concurrence was received on December 10, 2020 (Appendix C, pages 37 to 50).

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act, as amended. If new information on endangered species at the site becomes available, or if project plans are changed, USFWS will be contacted for consultation.

SECTION B – OTHER RESOURCES

Drinking Water Resources	Presence	Impacts Yes	Impacts No
Wellhead Protection Area			
Public Water System(s)			
Residential Well(s)			
Source Water Protection Area(s)			
Sole Source Aquifer (SSA)			

If a SSA is present, answer the following:

	Yes	No
Is the Project in the St. Joseph Aquifer System?		
Is the FHWA/EPA SSA MOU Applicable?		
Initial Groundwater Assessment Required?		
Detailed Groundwater Assessment Required?		

Remarks:

Outside of Sole Source Aquifer (SSA)
The project is located in Rush County, which is not located within the area of the St. Joseph Sole Source Aquifer, the only legally designated sole source aquifer in the state of Indiana. Therefore, the FHWA/EPA Sole Source Aquifer Memorandum of Understanding (MOU) is not applicable to this project. Therefore, a detailed groundwater assessment is not needed and no impacts are expected.

Not located in a Wellhead Protection Area and/or Source Water Area
The Indiana Department of Environmental Management's Wellhead Proximity Determinator website (http://www.in.gov/idem/cleanwater/pages/wellhead/) was accessed on April 3, 2020 by BF&S. This project is not located within a Wellhead Protection Area or Source Water Area. No impacts are expected.

No wells present, no impacts
The Indiana Department of Natural Resources Water Well Record Database website (https://www.in.gov/dnr/water/3595.htm) was accessed on July 11, 2020 by BF&S. No wells are located near this project. Therefore, no impacts are expected.

Not in an Urban Area Boundary Location
Based on a desktop review of the INDOT MS4 website (https://entapps.indot.in.gov/MS4/) by BF&S on March 9, 2020, and the RFI report, this project is not located in an Urban Area Boundary location. No impacts are expected.

Not in a Public Water System Location
Based on a desktop review, a site visit on August 29, 2019 by BF&S, the aerial map of the project area (Appendix B, page 2), no public water systems were identified. Therefore, no impacts are expected.

Flood Plains	Presence	Impacts Yes	Impacts No
Longitudinal Encroachment			
Transverse Encroachment	X	X	
Project located within a regulated floodplain	X	X	
Homes located in floodplain within 1000' up/downstream from project			

Discuss impacts according to classification system described in the "Procedural Manual for Preparing Environmental Studies".

Remarks:

Based on a desktop review of The Indiana Department of Natural Resources Indiana Floodway Information Portal website (http://dnrmaps.dnr.in.gov/appsphp/fdms/) by BF&S on July 12, 2020, and the RFI report; this

project is located in a regulatory floodplain as determined from approved IDNR floodplain maps (Appendix F, page 15). An early coordination letter was sent on July 12, 2020 to the local Floodplain Administrator. The floodplain administrator did not respond within the 30-day time frame. This project qualifies as a Category 5 per the current INDOT CE Manual due to this being a project built on a new alignment. There will be no substantial impacts on natural and beneficial floodplain values; there will be no substantial change in flood risks; and there will be no substantial increase in potential for interruption or termination of emergency service or emergency evaluation routes; therefore, it has been determined that this encroachment is not substantial.

Farmland	**Presence**	**Impacts** Yes	No
Agricultural Lands	X	X	
Prime Farmland (per NRCS)	X	X	

Total Points (from Section VII of CPA-106/AD-1006* **128**
**If 160 or greater, see CE Manual for guidance.*

See CE Manual for guidance to determine which NRCS form is appropriate for your project.

Remarks: Based on a desktop review, a site visit on August 29, 2019 by BF&S, the aerial map of the project area (Appendix B, page 3), the project will convert zero acres of farmland as defined by the Farmland Protection Policy Act. An early coordination letter was sent on April 3, 2020 to Natural Resources Conservation Services (NRCS) (Appendic C, pages 1 to 3). Coordination with NRCS resulted in a score of 128 on the NRCS-AD-1006 Form (Appendix C, page 23). NRCS's threshold score for significant impacts to farmland that result in the consideration of alternatives is 160. Since this project score is less than the threshold, no significant loss of prime, unique, statewide, or local important farmland will result from this project. No alternatives other than those previously discussed in this document will be investigated without reevaluating impacts to prime farmland.

SECTION C – CULTURAL RESOURCES

	Category	**Type**	**INDOT Approval Dates**	**N/A**
Minor Projects PA Clearance	**B**	**12**	**December 22, 2020**	

Results of Research

	Eligible and/or Listed Resource Present
Archaeology	
NRHP Buildings/Site(s)	
NRHP District(s)	
NRHP Bridge(s)	

Project Effect

No Historic Properties Affected [ ] No Adverse Effect [ ] Adverse Effect [ ]

Documentation (mark all that apply)	**Documentation Prepared**	**ES/FHWA Approval Date(s)**	**SHPO Approval Date(s)**
Historic Properties Short Report			
Historic Property Report			
Archaeological Records Check/ Review	X	12-22-2020	N/A
Archaeological Phase Ia Survey Report	X	12-22-2020	N/A

Indiana Department of Transportation

County Rush Route County Road 1100 N over Six Mile Creek Des. No. 1802929

Archaeological Phase Ic Survey Report			
Archaeological Phase II Investigation Report			
Archaeological Phase III Data Recovery			
APE, Eligibility and Effect Determination			
800.11 Documentation			

		MOA Signature Dates (List all signatories)
Memorandum of Agreement (MOA)		

Describe all efforts to document cultural resources, including a detailed summary of the Section 106 process, using the categories outlined in the remarks box. The completion of the Section 106 process requires that a Legal Notice be published in local newspapers. Please indicate the publication date, name of paper(s) and the comment period deadline. Likewise include any further Section 106 work which must be completed at a later date, such as mitigation or deep trenching.

Remarks:

On December 22, 2020, the INDOT Cultural Resource Office (CRO) determined that this project falls within the guidelines of Category B, Type 12 under the Minor Projects Programmatic Agreement (Appendix D, pages 1 to 4). Category B-12 includes replacement, widening, or raising the elevation of the superstructure on existing bridges, and bridge replacement projects (when both the superstructure and substructure are removed), when under condition A.ii. work occurs in undisturbed soils and an archaeological investigation conducted by the applicant and reviewed by INDOT CRO determines that no NRHP-listed or potentially NRHP-eligible archaeological resources are present within the project area; and under conditions B.i. work does not occur adjacent to or within an NRHP-listed or NRHP-eligible district or individual above-ground resource; and B.ii.b. the bridge was built after 1945, and is a common type as defined in Section V. of the *Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges* issued by the advisory Council on Historic Preservation on November 2, 2012 for so long as that Program Comment remains in effect AND the considerations listed in Section IV of the Program Comment do not apply.

An Archaeological Short Report (consisting of an Archaeological Records Check and a Phase Ia Archaeological Field Reconnaissance) was conducted by NS Services, Inc. on March 16, 2020 and November 20, 2020. In the resulting Archaeological Short Report (ASR; December 18, 2020), the archaeologist reported one previously recorded archeological site and recommended the project be allowed to proceed as planned (Appendix D, pages 5 to 10).

The ASR was approved by the INDOT CRO on December 22, 2020 and forwarded to the SHPO on December 28, 2020 (Appendix D, page 11).

SECTION D – SECTION 4(f) RESOURCES/ SECTION 6(f) RESOURCES

Section 4(f) Involvement (mark all that apply)

	Presence	Use	
Parks & Other Recreational Land		Yes	No
Publicly owned park	☐	☐	☐
Publicly owned recreation area	☐	☐	☐
Other (school, state/national forest, bikeway, etc.)	☐	☐	☐

	Evaluations Prepared	FHWA Approval date
Programmatic Section 4(f)*	☐	
"De minimis" Impact*	☐	
Individual Section 4(f)	☐	☐

	Presence	Use	
Wildlife & Waterfowl Refuges		Yes	No
National Wildlife Refuge	☐	☐	☐
National Natural Landmark	☐	☐	☐
State Wildlife Area	☐	☐	☐
State Nature Preserve	☐	☐	☐

	Evaluations Prepared	FHWA Approval date
Programmatic Section 4(f)*	☐	
"De minimis" Impact*	☐	
Individual Section 4(f)	☐	☐

	Presence	Use	
Historic Properties		Yes	No
Sites eligible and/or listed on the NRHP	☐	☐	☐

	Evaluations Prepared	FHWA Approval date
Programmatic Section 4(f)*	☐	
"De minimis" Impact*	☐	
Individual Section 4(f)	☐	☐

**FHWA approval of the environmental document also serves as approval of any Section 4f Programmatic and/or De minimis evaluation(s) discussed below.*

Discuss Programmatic Section 4(f) and "de minimis" Section 4(f) impacts in the remarks box below. Individual Section 4(f) documentation must be separate Draft and Final documents. For further discussions on Programmatic, "de minimis" and Individual Section 4(f) evaluations please refer to the "Procedural Manual for the Preparation of Environmental Studies". Discuss proposed alternatives that satisfy the requirements of Section 4(f).

Remarks: Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits the use of certain public and historic lands for federally funded transportation facilities unless there is no feasible and prudent alternative. The law applies to significant publicly owned parks, recreation areas, wildlife / waterfowl refuges, and NRHP eligible or listed historic properties regardless of ownership. Lands subject to this law are considered Section 4(f) resources.

Based on a desktop review, a site visit on August 29, 2019 by BF&S, the aerial map of the project area (Appendix B, page 3), and the RFI report (Appendix E), there are no Section 4(f) resources located within the 0.5 mile search radius. There are no Section 4(f) resources within or adjacent to the project area. Additionally, no historic 4(f) resources were indicated in the MPPA and ASR Report (Appendix D, pages 1 to 9). Therefore, no use is expected.

Section 6(f) Involvement	**Presence**	**Use**	
		Yes	**No**
Section 6(f) Property	☐	☐	☐

Discuss proposed alternatives that satisfy the requirements of Section 6(f). Discuss any Section 6(f) involvement.

Remarks: The U.S. Land and Water Conservation Fund Act of 1965 established the Land and Water Conservation Fund (LWCF), which was created to preserve, develop, and assure accessibility to outdoor recreation resources. Section 6(f) of this Act prohibits conversion of lands purchased with LWCF monies to a non-recreation use.

A review of 6(f) properties on the Land and Water Conservation Fund (LWCF) spreadsheet provided by INDOT at https://www.in.gov/indot/files/2019%20Indiana%20LWCF%20Projects.xlsx revealed zero properties in Rush County. Therefore, there will be no impacts to 6(f) resources as a result of this project.

SECTION E – Air Quality

Air Quality

Conformity Status of the Project	**Yes**	**No**
Is the project in an air quality non-attainment or maintenance area?	☐	X
If YES, then:		
Is the project in the most current MPO TIP?	☐	☐
Is the project exempt from conformity?	☐	☐
If the project is NOT exempt from conformity, then:		
Is the project in the Transportation Plan (TP)?	☐	☐
Is a hot spot analysis required (CO/PM)?	☐	☐

Level of MSAT Analysis required?

Level 1a ☒ Level 1b ☐ Level 2 ☐ Level 3 ☐ Level 4 ☐ Level 5 ☐

Remarks: This project is included in the Fiscal Year (FY) 2020-2024 Statewide Transportation Improvement Program (STIP) (Appendix H, page 2). This project is not located within a Metropolitan Planning Organization (MPO).

This project is located in Rush County, which is currently in attainment for all criteria pollutants according to http://www.in.gov/idem/airquality/files/nonattainment_county_list.pdf and/or https://www.in.gov/idem-/airquality/files/nonattainment_areas_map.pdf. Therefore, the conformity procedures of 40 CFR Part 93 do

not apply.

This project is of a type qualifying as a categorical exclusion (Group 1) under 23 CFR 771.117(c), or exempt under the Clean Air Act conformity rule under 40 CFR 93.126, and as such, a Mobile Source Air Toxics analysis is not required.

SECTION F - NOISE

Noise	Yes	No
Is a noise analysis required in accordance with FHWA regulations and INDOT's traffic noise policy?		X

	No	Yes/ Date
ES Review of Noise Analysis		

Remarks: This project is a Type III project. In accordance with 23 CFR 772 and the current *Indiana Department of Transportation Traffic Noise Analysis Procedure*, this action does not require a formal noise analysis.

SECTION G – COMMUNITY IMPACTS

Regional, Community & Neighborhood Factors	Yes	No
Will the proposed action comply with the local/regional development patterns for the area?	X	
Will the proposed action result in substantial impacts to community cohesion?		X
Will the proposed action result in substantial impacts to local tax base or property values?		X
Will construction activities impact community events (festivals, fairs, etc.)?		X
Does the community have an approved transition plan?	X	
If No, are steps being made to advance the community's transition plan?		
Does the project comply with the transition plan? (explain in the remarks box)	X	

Remarks: This project is not of regional significance and will not have a significant impact on community cohesion or property values. The Rush County Chamber of Commerce website was reviewed on July 10, 2020 by BF&S (http://rushcounty.com/) and it does not appear that any community events will be disrupted by the proposed project. The project is in a rural environment and it is not anticipated to divide a community or destroy any areas where the community hosts events.

The project will not change land use or greatly affect the view shed of the area. Further, this project will provide an improved structure and approaches, allowing for continued mobility for motorists. Therefore, this project is not anticipated to have any substantial negative indirect or cumulative impacts to the area.

The Rush County Highway Department has adopted an Americans with Disabilities (ADA) transition plan (http://rushcounty.in.gov/wp-content/uploads/2017/04/1222.pdf). As the project will not introduce any elements that may restrict ADA, it complies with the plan.

Indirect and Cumulative Impacts

Will the proposed action result in substantial indirect or cumulative impacts?	Yes	No
		X

Remarks:

Indirect impacts are effects which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate. Cumulative impacts affect the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions.

The project will not change the general land use of the area. At this time, there are no other planned projects in the immediate area. As a result, no negative indirect or cumulative effects are anticipated.

Public Facilities & Services

Will the proposed action result in substantial impacts on health and educational facilities, public and private utilities, emergency services, religious institutions, airports, public transportation or pedestrian and bicycle facilities? *Discuss how the maintenance of traffic will affect public facilities and services.*	Yes	No
		X

Remarks:

Based on a desktop review, a site visit on August 29, 2019 by BF&S, the aerial map of the project area (Appendix B, page 3), and the RFI report (Appendix E), there is one pipeline segment located approximately 0.47 mile south of the project area. There are no public facilities within or adjacent to the project area. Access to all properties will be maintained during construction. Therefore, no impacts are expected.

Early Coordination

Early coordination letters were sent to the Rush County Commissioners, Rush County Highway Superintendent, Rush County Surveyor, and the Rush County Sheriff on April 3, 2020 (Appendix C, pages 1 to 3).

The Rush County Highway Department responded on April 12, 2020, indicating that they had no comment (Appendix C, page 25).

The Rush County Commissioners responded on April 3, 2020, indicating that they had no comment (Appendix C, page 24).

A detour route, approximately 2.9 to 4.5 miles (adding 6 to 8 miles to a through trip) dependent on direction of travel, will be provided during the construction of the project and be coordinated with all emergency services such as police, fire, medical, etc. (Appendix B, page 7). It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access.

Environmental Justice (EJ) (Presidential EO 12898)

	Yes	No
During the development of the project were EJ issues identified?		X
Does the project require an EJ analysis?	X	
If YES, then:		
Are any EJ populations located within the project area?		X
Will the project result in adversely high or disproportionate impacts to EJ populations?		X

Remarks:

Under FHWA Order 6640.23A, FHWA and the project sponsor, as a recipient of funding from FHWA, are responsible to ensure that their programs, policies, and activities do not have a disproportionately high and adverse effect on minority or low-income populations. Per the current INDOT Categorical Exclusion Manual, an Environmental Justice (EJ) Analysis is required for any project that has two or more relocations or 0.5 acre of additional permanent right-of-way. The project will require 0.65 acre of new permanent ROW. Therefore, an EJ Analysis is required.

Potential EJ impacts are detected by locating minority and low-income populations relative to a reference population to determine if populations of EJ concern exists and whether there could be disproportionately high and adverse impacts to them. The reference population may be a county, city or town and is called the community of comparison (COC). In this project, the COC is Rush County. The community that overlaps the project area is called the affected community (AC). In this project, the AC is Census Tract 9742, Rush County, Indiana. An AC has a population of concern for EJ if the population is more than 50% minority or low-income or if the low-income or minority population is 125% of the COC. Data from U.S. Census Bureau 2018 American Community Survey (ACS) 5-year Estimates was obtained from the US Census Bureau Website https://factfinder.census.gov/ on July 21, 2020 by BF&S. The data collected for minority and low-income populations within the AC are summarized in the below table.

Table: Minority and Low-Income Data (U.S. Census Bureau 2018 ACS 5-year Estimates)

	COC – Rush County, Indiana	AC-1 – Census Tract 9742, Rush County, Indiana
Percent Minority	4.18%	2.73%
125% of COC	5.22%	AC < 125% COC
EJ Population of Concern		No
Percent Low-Income	15.94%	16.63%
125% of COC	19.93%	AC < 125% COC
EJ Population of Concern		No

AC-1, Census Tract 9742 has a percent minority of 2.73% which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain a minority population of EJ concern.

AC-1, Census Tract 9742 has a percent low-income of 16.63% which is below 50% and is below the 125% COC threshold. Therefore, the AC does not contain a low-income population of EJ concern.

Conclusion

The census data sheets, map, and calculations can be found in Appendix I. No further environmental justice analysis is warranted.

Relocation of People, Businesses or Farms

	Yes	No
Will the proposed action result in the relocation of people, businesses or farms?		X
Is a Business Information Survey (BIS) required?		X
Is a Conceptual Stage Relocation Study (CSRS) required?		X
Has utility relocation coordination been initiated for this project?	X	

Number of relocations: Residences: 0 Businesses: 0 Farms: 0 Other: 0

If a BIS or CSRS is required, discuss the results in the remarks box.

Remarks:

The following utilities have been identified in the vicinity of the project area:

Rush-Shelby Energy
AT&T

An Initial Notice of Improvement was sent to the above-listed utilities on August 27, 2019 (see Appendix C, pages 28 to 29). Utilities were contacted under original project ROW footprint. Although the ROW footprint was reduced, the current project is still within the original footprint. There is no conflict between the two designs with utilities. No issues with utility relocations have been raised.

All utilities located within the project area will have work plans in place to expedite the relocation of their

facilities, if necessary. The utility is responsible for the relocation of their utilities prior to the start of construction. In order to minimize disruption of services, it is anticipated that the utility will place and connect new utility lines in a new location within the proposed ROW to be acquired for the project before removing the existing lines that are in conflict with the project.

Coordination with utilities is ongoing and will continue throughout the design phase to identify any existing conflicts. Additional environmental documentation will be necessary if any utility conflicts result in an increase in project scope or the need for additional permanent or temporary ROW acquisition.

SECTION H – HAZARDOUS MATERIALS & REGULATED SUBSTANCES

Hazardous Materials & Regulated Substances (Mark all that apply)	**Documentation**
Red Flag Investigation	X
Phase I Environmental Site Assessment (Phase I ESA)	
Phase II Environmental Site Assessment (Phase II ESA)	
Design/Specifications for Remediation required?	

	No	**Yes/ Date**
ES Review of Investigations	**X, LPA**	

Include a summary of findings for each investigation.

Remarks: Based on a review of GIS and available public records, an RFI Report was completed on March 9, 2020 by BF&S (Appendix E). No sites with hazardous material concerns (hazmat sites) or sites involved with regulated substances were identified in or within 0.5 mile of the project area. Further investigation for hazardous material concerns or regulated substances is not required at this time.

Six Mile Creek is listed as impaired for *E. coli*. Workers who are working in or near water with *E. coli* should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

SECTION I – PERMITS CHECKLIST

Permits (mark all that apply)	**Likely Required**
Army Corps of Engineers (404/Section10 Permit)	
Individual Permit (IP)	
Nationwide Permit (NWP)	
Regional General Permit (RGP)	X
Pre-Construction Notification (PCN)	
Other	
Wetland Mitigation required	
Stream Mitigation required	
IDEM	
Section 401 WQC	X
Isolated Wetlands determination	
Rule 5	X
Other	
Wetland Mitigation required	
Stream Mitigation required	
IDNR	
Construction in a Floodway	
Navigable Waterway Permit	

Lake Preservation Permit	
Other	
Mitigation Required	
US Coast Guard Section 9 Bridge Permit	
Others (Please discuss in the remarks box below)	

Remarks:

A Rule 5 permit is required due to the total work area anticipated to be approximately 1.12 acres, which is greater than the land disturbance of the allowable one (1) acre.

A Section 401 permit from IDEM and a Section 404 permit from USACE will be required due to the removal of the existing bridge and the subsequent construction of a new bridge resulting in permanent fill material being placed below the OHWM of Six Mile Creek.

A Construction in a Floodway permit from the IDNR will not be necessary as the bridge qualifies for the bridge a bridge exemption due to being in a rural area, having less than 50 square mile drainage area, and being a county bridge project.

Applicable recommendations provided by IDNR are included in the *Environmental Commitments* section of this document. If a permit is found to be necessary, the conditions of the permit will be requirements of the project and will supersede these recommendations.

No county permits are required as Six Mile Creek is not a legal drain.

It is the responsibility of the project sponsor to identify and obtain all required permits.

SECTION J- ENVIRONMENTAL COMMITMENTS

The following information should be provided below: List all commitments, name of agency/organization requesting the commitment(s), and indicating which are firm and which are for further consideration. The commitments should be numbered.

Remarks:

Firm:

1. If the scope of work or permanent or temporary right-of-way amounts change, the INDOT Environmental Services Division (ESD) and the INDOT District Environmental Section will be contacted immediately. (INDOT ESD and INDOT-Greenfield District)

2. It is the responsibility of the project sponsor to notify school corporations and emergency services at least two weeks prior to any construction that would block or limit access. (INDOT ESD)

3. General AMM 1: Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs. (USFWS)

4. Tree Removal AMM 1: Modify all phases/aspects of the project (e.g. temporary work areas, alignments) to avoid tree removal. (USFWS)

5. Tree Removal AMM 2: Apply time of year restrictions (October 1 to March 31) for tree removal when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/trail surface and outside of documented roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed. (USFWS, IDNR)

6. Tree Removal AMM 3: Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g. install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits). (USFWS)

7. Tree Removal AMM 4: Do not remove **documented** Indiana bat or NLEB roosts that are still suitable for roosting or trees within 0.25 miles of roosts or **documented** foraging habitat any time of year. (USFWS)

8. USFWS Bridge/Structure Assessment shall take place no earlier than two (2) years prior to the start of construction. If construction will begin after (August 29, 2021), an inspection of the structure by a qualified individual, must be performed. Inspection of the structure should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately. (INDOT ESD)

9. A review of the USFWS coordination must occur prior to RFC date to ensure the species determination is still valid, and no additional species have been listed that will require coordination. (INDOT ESD)

10. Six Mile Creek is listed as impaired for *E. coli*. Workers who are working in or near water with *E. coli* should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure. (INDOT ESD)

11. Repairs to the bridge could affect any nesting birds or roosting bats. Avoidance and minimization measures must be implemented prior to the start of and during the nesting season. Nests without eggs or young should be removed prior to construction during the non-nesting season (September 8 – April 30) and during the nesting season if no eggs or young are present. Nests with eggs or young cannot be removed or disturbed during the nesting season (May 1 – September 7). Nests with eggs or young should be screened or buffered from active construction. Details of the required procedures are outlined in the "Potential Migratory Bird on Structure USP". (IDNR)

12. The Division of Fish and Wildlife (DFW) recommends bridge maintenance activities be restricted to the period between November 1 and March 1 to avoid the summer roosting period for most bats in the central part of the State. However, some endangered bats could use a bridge to roost between November and March. No matter when work is proposed, the bridge must be inspected for the presence of bats. If there is no evidence of active bat use, work can proceed. If there is evidence of active bat use, work must not occur until either the bats leave the structure for the season or a separate permit is issued to remove the bats. Please contact Linnea Petercheff (lpetercheff@dnr.in.gov) regarding permits to handle bats. If bats are present, a more formal survey to determine what species are present may be required. (IDNR)

13. Nest surveys should occur between May 7 and September 7, which denotes the main nesting season for most bird species. If nests are found with eggs, chicks, or parents actively attending to the nest (building the nest and visiting often), then repairs should be put on hold until the nests complete their nesting cycle (to fledging) or fail (by natural causes). Or, the bridge should be surveyed for nests during those dates prior to construction, in order to comply with the Migratory Bird Treaty Act (MBTA) of 1918. (IDNR)

For Further Consideration:

14. Evaluate wildlife crossings under bridge/culverts projects in appropriate situations. Suitable crossings include flat areas below bridge abutments with suitable ground cover, high water shelves

in culverts, amphibian tunnels, and diversion fencing. (IDNR, USFWS)

15. Restrict below low-water work in streams to placement of culverts, piers, pilings, and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap. (USFWS)

16. Minimize the extent of hard armor (riprap) in bank stabilization by using bioengineering techniques whenever possible. If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat. (USFWS)

17. Avoid all work within the inundated part of the stream channel during the fish spawning season (April 1 through June 30); except for work within sealed structures such as caissons or cofferdams that were installed prior to the spawning season. No equipment shall be operated below Ordinary High Water Mark during this time unless the machinery is within the caissons or on the cofferdams. (USFWS)

18. Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the ordinary high-water mark (OHWM). The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to [site indicated] and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion. (IDNR)

19. Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10 inches dbh or greater (5:1 mitigation based on the number of large trees). (IDNR)

20. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure. (IDNR)

21. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds. (IDNR)

22. Operate equipment used to replace the bridge from the existing roadway. (IDNR)

23. Use minimum average 6-inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids. (IDNR)

24. If box or pipe culverts are used, the bottoms should be buried to a minimum of 6” (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2’) below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the bankfull width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width/length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel. (IDNR)

25. Culverts should span the active stream channel, should be either embedded or a 3-sided or open-arch culvert, and be installed where practicable on an essentially flat slope. When an open-bottom culvert or arch is used in a stream, which has a good natural bottom substrate, such as gravel, cobbles, and boulders, the existing substrate should be left undisturbed beneath the culvert to

provide natural habitat for the aquatic community. (USFWS)

SECTION K- EARLY COORDINATION

Please list the date coordination was sent and all agencies that were contacted as a part of the development of this Environmental Study. Also, include the date of their response or indicate that no response was received. INDOT and FHWA are automatically considered early coordination participants and should only be listed if a response is received.

Remarks: Early Coordination was sent for this project on April 3, 2020 (see submittal correspondence in Appendix C, C1 – C3). A list of the resource agencies contacted is provided below, along with their response date (if applicable).

AGENCY	SENT DATE	RESPONSE DATE
U.S. Fish and Wildlife Service	April 3, 2020	April 6, 2020
USDA Natural Resources Conservation Service	April 3, 2020	April 8, 2020
U.S. Department of Housing and Urban Development	April 3, 2020	No Response
National Park Service	April 3, 2020	No Response
Indiana Department of Transportation, Department of Environmental Services	March 24, 2020*	March 24, 2020
Indiana Department of Natural Resources	April 3, 2020	May 1, 2020
United States Army Corps of Engineers, Louisville District	April 3, 2020	No Response
Rush County Sheriff	April 3, 2020	No Response
Rush County Commissioners	April 3, 2020	No Response
Indiana Department of Environmental Management Roadway Letter	April 3, 2020	No Response
Indiana Geological Survey	April 3, 2020	No Response
Indiana Wellhead Determinator	April 3, 2020	No Response
Rush County Highway Superintendent's Office	April 3, 2020	April 6, 2020
Rush County Surveyor	April 3, 2020	No Response
Indiana Department of Environmental Management, Ground Water Section	April 3, 2020	No response
Floodplain Administrator	July 12, 2020	No Response

*IPaC Bat Consultation occurred on March 24, 2020 when INDOT ESD provided project commitments. Therefore, this was considered early coordination from INDOT ESD since they did not respond to the early coordination letter sent April 3, 2020.

APPENDIX TABLE OF CONTENTS

Categorical Exclusion Level 2
Replacement of Rush County Bridge No. 1 carrying County Road 1100 North
over Six Mile Creek
Des. No. 1802929, Rush County, Indiana

Appendix F: Ecological and Water Resources

Appendix G: Public Involvement

Appendix H: Air Quality

Appendix I: Additional Studies

Appendix A

INDOT Supporting Documentation

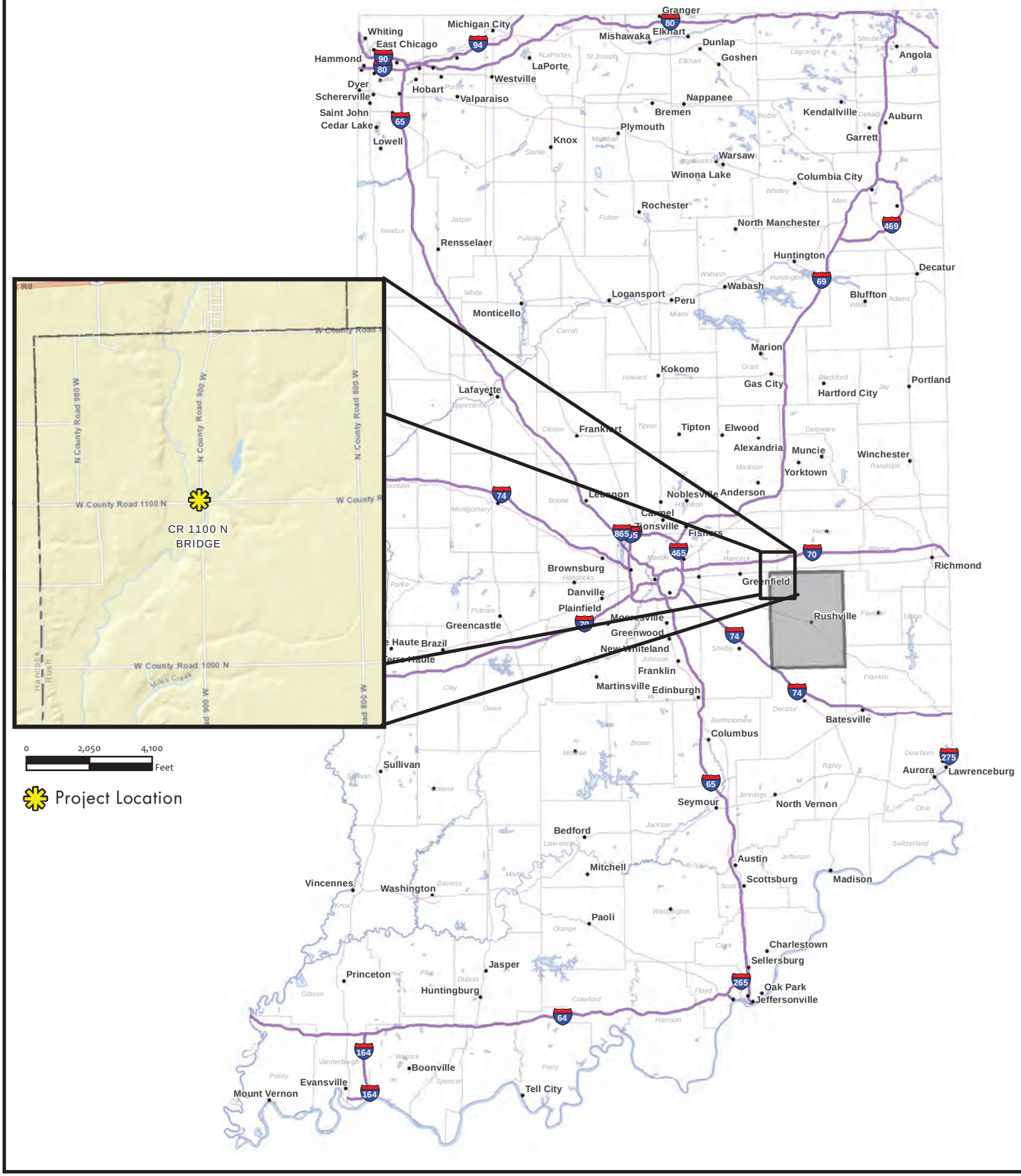
Categorical Exclusion Level Thresholds

	PCE	Level 1	Level 2	Level 3	Level 4[1]
Section 106	Falls within guidelines of Minor Projects PA	"No Historic Properties Affected"	"No Adverse Effect"	-	"Adverse Effect" Or Historic Bridge involvement[2]
Stream Impacts	No construction in waterways or water bodies	< 300 linear feet of stream impacts	≥ 300 linear feet of stream impacts	-	Individual 404 Permit
Wetland Impacts	No adverse impacts to wetlands	< 0.1 acre	-	< 1 acre	≥ 1 acre
Right-of-way[3]	Property acquisition for preservation only or none	< 0.5 acre	≥ 0.5 acre	-	-
Relocations	None	-	-	< 5	≥ 5
Threatened/Endangered Species (Species Specific Programmatic for Indiana bat & northern long eared bat)	"No Effect", "Not likely to Adversely Affect" (Without AMMs[4] or with AMMs required for all projects[5])	"Not likely to Adversely Affect" (With any other AMMs)	-	"Likely to Adversely Affect"	Project does not fall under Species Specific Programmatic
Threatened/Endangered Species (Any other species)	Falls within guidelines of USFWS 2013 Interim Policy	"No Effect", ""Not likely to Adversely Affect"	-	-	"Likely to Adversely Affect"
Environmental Justice	No disproportionately high and adverse impacts	-	-	-	Potential[6]
Sole Source Aquifer	Detailed Assessment Not Required	-	-	-	Detailed Assessment
Floodplain	No Substantial Impacts	-	-	-	Substantial Impacts
Coastal Zone Consistency	Consistent	-	-	-	Not Consistent
National Wild and Scenic River	Not Present	-	-	-	Present
New Alignment	None	-	-	-	Any
Section 4(f) Impacts	None	-	-	-	Any
Section 6(f) Impacts	None	-	-	-	Any
Added Through Lane	None	-	-	-	Any
Permanent Traffic Alteration	None	-	-	-	Any
Coast Guard Permit	None	-	-	-	Any
Noise Analysis Required	No	-	-	-	Yes
Air Quality Analysis Required	No	-	-	-	Yes[7]
Approval Level • **District Env. Supervisor** • **Env. Services Division** • **FHWA**	Concurrence by INDOT District Environmental or Environmental Services	Yes	Yes	Yes Yes	Yes Yes Yes

[1]Coordinate with INDOT Environmental Services. INDOT will then coordinate with the appropriate FHWA Environmental Specialist.
[2]Any involvement with a bridge processed under the Historic Bridge Programmatic Agreement.
[3]Permanent and/or temporary right-of-way.
[4]AMMs = Avoidance and Mitigation Measures.
[5]AMMs determined by the IPAC decision key to be needed that are listed in the USFWS *User's Guide for the Range-wide Programmatic Consultation for Indiana bat and Northern long-eared bat* as "required for all projects".
[6]Potential for causing a disproportionately high and adverse impact.
[7]Hot Spot Analysis and/or MSAT Quantitative Emission Analysis.
*Substantial public or agency controversy may require a higher-level NEPA document.

Appendix B

Graphics

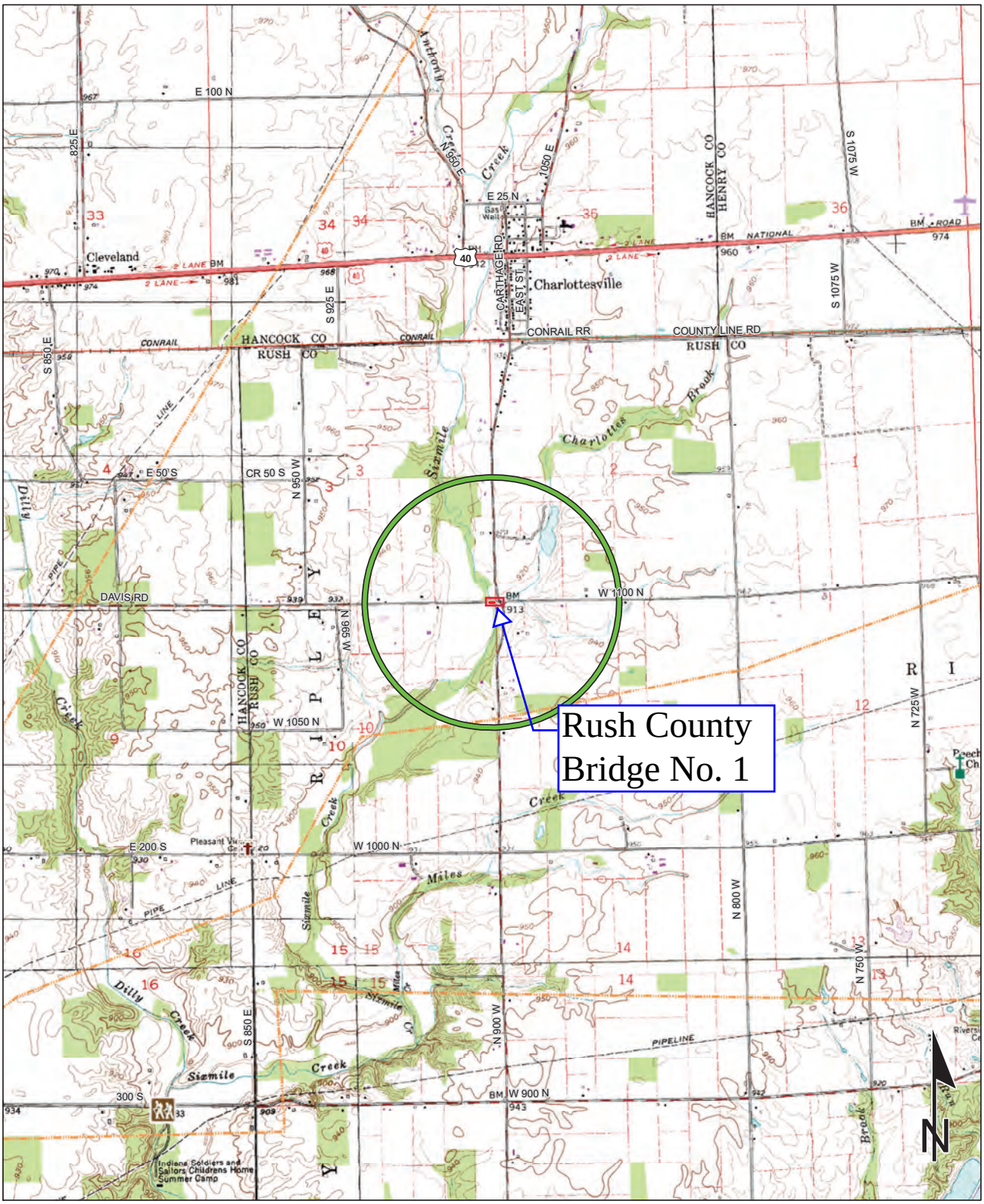


Map Source: Indiana Map

State Map

Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Section 10, Township 15N, Range 8E
Rush County, Indiana

Red Flag Investigation - Quadrangle Map
Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana



Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

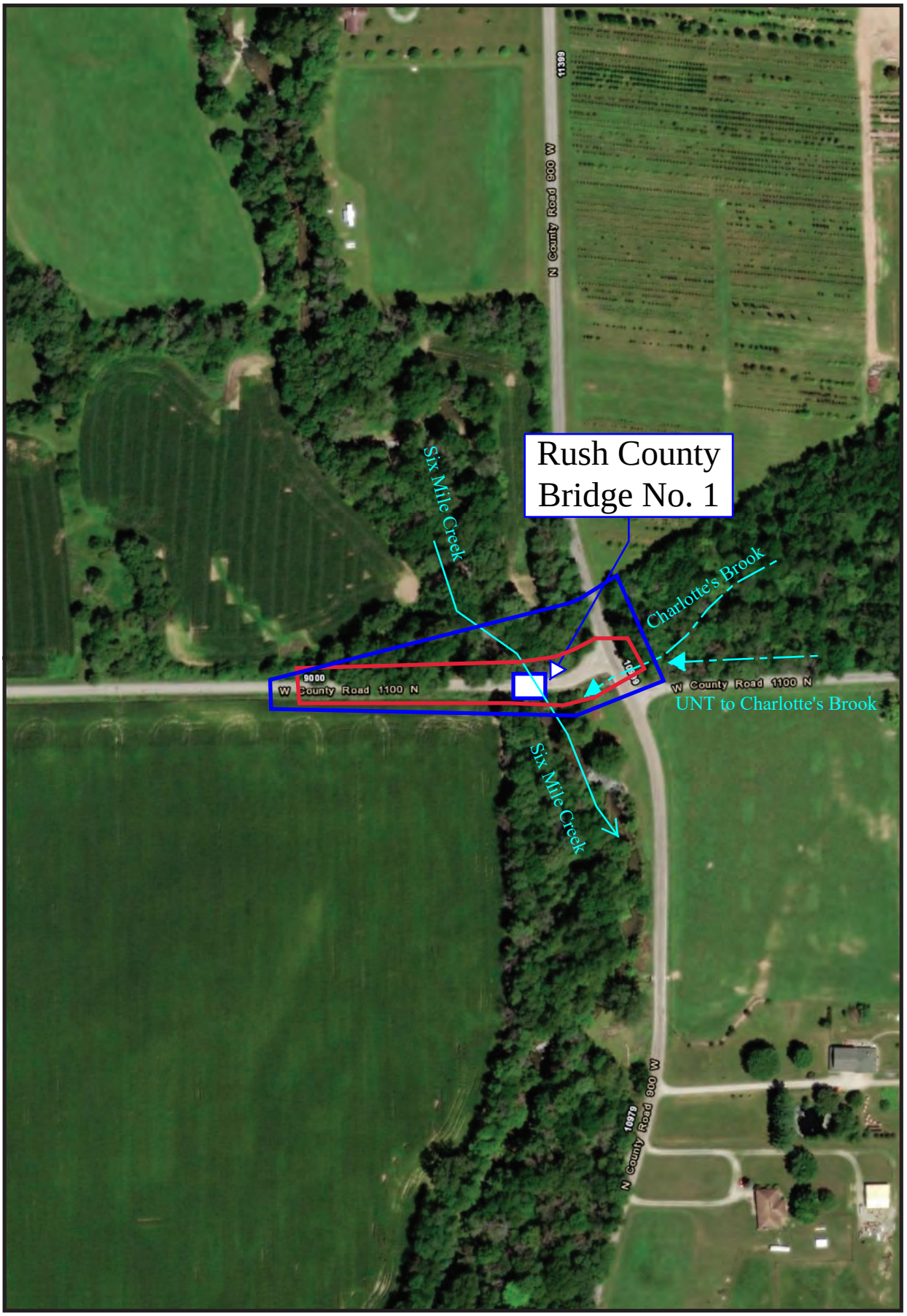
0.5 0.25 0 0.5 Miles

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Approximate project area

0.5 mile radius of the project area

KNIGHTSTOWN QUADRANGLE
INDIANA
7.5 MINUTE SERIES
(TOPOGRAPHIC)



Legend

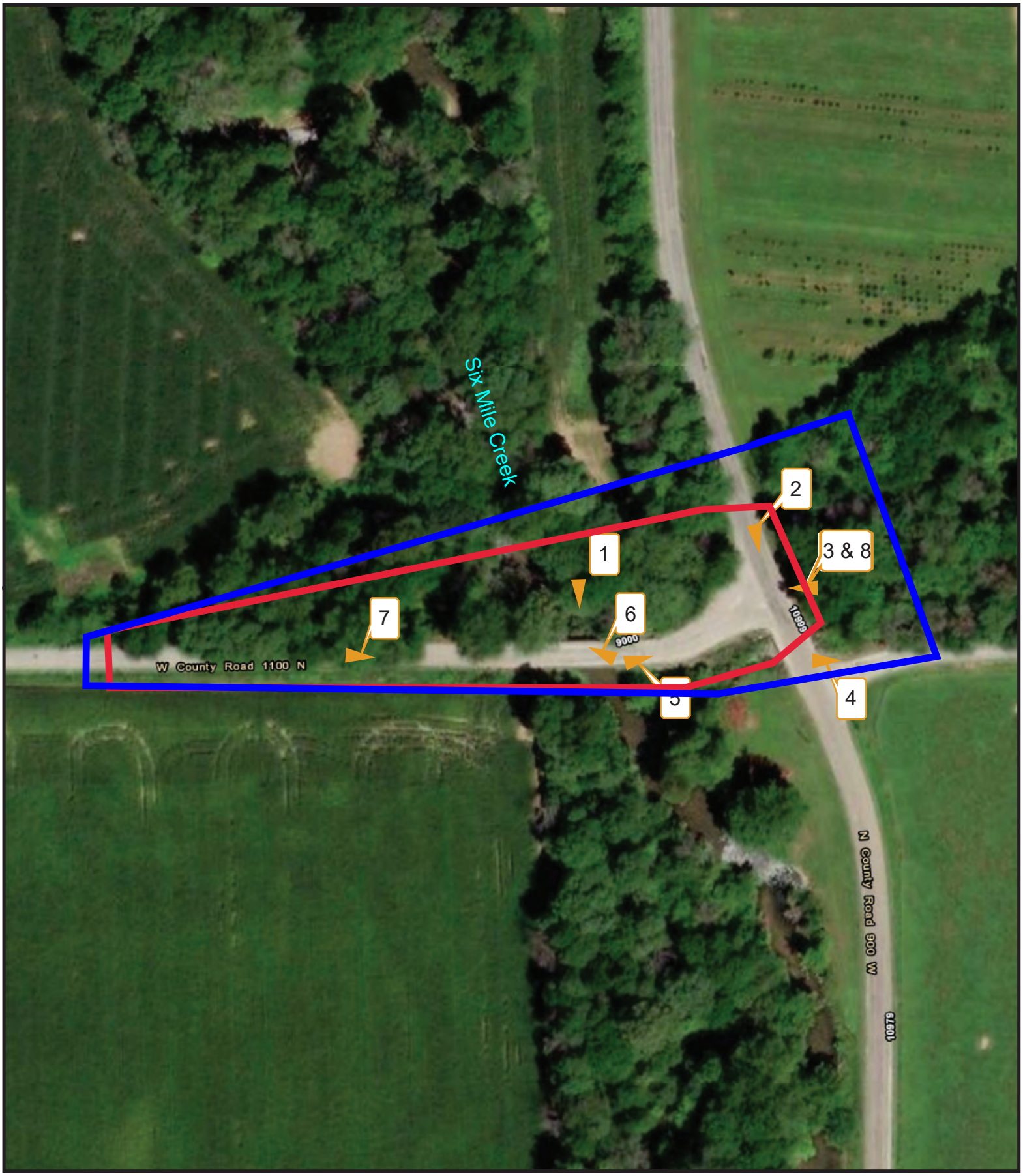
- Project Area
- Waters of the US Study Area
- Flow Direction of Stream

Map Source: Indiana Geological Survey (IGS), IndianaMap, 2020 ArcGIS Online (ESRI) World Imagery.

0 125 250 500 Feet

Aerial Map

Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana



Legend

0 50 100 200 Feet

- Photo Location
- Project Area
- Waters of the US Study Area

Photo Orientation Map

Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana

Map Source: Indiana Geological Survey (IGS), IndianaMap, 2020
ArcGIS Online (ESRI) World Imagery.

Rush County Bridge 1 carrying CR 1100 N over Six Mile Creek

Photo 1: Looking south towards Rush Co. Bridge No. 1.

Photo 2. Looking south along CR 900 W at the intersection of CR 1100 N at Rush Co. Bridge No. 4.

Photo 3. At the intersection of CR 1100 N and CR 900 W looking west towards Rush Co. Bridge No. 1.

Photo 4. Looking north along CR 900 W at the intersection with CR 1100 N.

BF&S CIVIL ENGINEERS

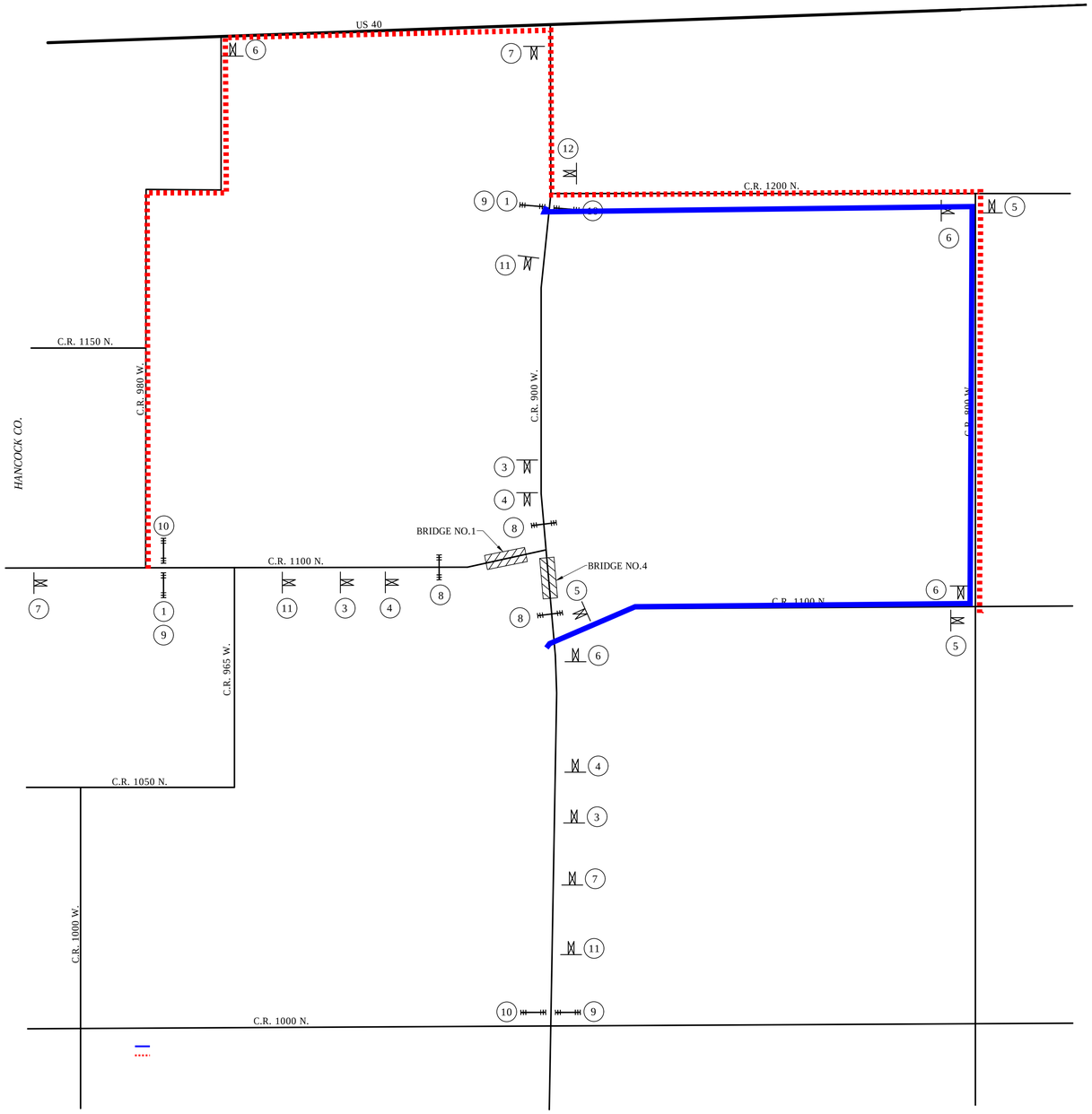
Photo 5: Looking east towards the intersection of CR 1100 N & CR 900W from Bridge No. 1.

Photo 6: Looking south at the downstream side of Rush County Bridge No. 1.

Photo 7. Looking east along CR 1100 N towards Rush County Bridge No. 1.

Photo 8. Guardrail damage CR 1100 N and CR 900 W looking west towards Rush Co. Bridge No. 1.

BF&S CIVIL ENGINEERS



SIGN LEGEND

SYMBOL	MESSAGE	NUMBER	TYPE	REQ'D.
1	ROAD CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3	A	*
	DETOUR	XM4-10(L)	B	
2	ROAD CLOSED MILES AHEAD LOCAL TRAFFIC ONLY	R11-3	A	*
	DETOUR	XM4-10(R)	B	
3	ROAD CLOSED 1000 FT.	XW20-3	A	3
4	ROAD CLOSED 500 FT.	XW20-3	A	3
5	DETOUR ROUTE MARKER ASSEMBLY (LEFT)			3
6	DETOUR ROUTE MARKER ASSEMBLY (RIGHT)			4
7	DETOUR AHEAD	XW20-2	A	3
8	STANDARD BARRICADE (TYPE III-A) (24'-0" SECTION) ⊛			3
	ROAD CLOSURE SIGN ASSEMBLY (R11-2)			3
9	STANDARD BARRICADE (TYPE III-B) (12' SECTION)			3
	ROAD CLOSURE SIGN ASSEMBLY (R11-2)			3
10	STANDARD BARRICADE (TYPE III-B) (12' SECTION)			3
11	ROUTE CLOSURE NOTICE	XG20-5	A	⊕3
12	END DETOUR	M4-8a	B	1

* INDICATES SIGN TO BE INCLUDED WITH ROAD CLOSURE SIGN ASSEMBLY.

⊛ 2 BARRICADES REQUIRED PER LOCATION. TOTAL QUANTITY = 72'-0"

⊕ TO BE PLACED 2 WEEKS PRIOR TO ROAD CLOSURE

LEGEND

TYPE III-A/III-B BARRICADE

CONSTRUCTION SIGN TYPE AS SHOWN

North/South Detour Route

East/West Detour Route

TRAFFIC CONTROL PLAN

Not to Scale

RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE

DESIGNED: M. MATEL DRAWN: K. COFFMAN

CHECKED: Q. O'BRIEN CHECKED: M. MATEL

INDIANA
DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC

HORIZONTAL SCALE	BRIDGE FILE
As Noted	RUSH 1
VERTICAL SCALE	DESIGNATION
N/A	1802929
SURVEY BOOK	SHEET
ELECTRONIC	5 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390

PROJECT	DESIGNATION
1802929	1802929
CONTRACT	BRIDGE FILE
B-42073	RUSH 1

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN & SKEW	OVER	STATION
RUSH 1	CONTINUOUS COMPOSITE PRESTRESSED CONCRETE BOX BEAM BRIDGE	3 SPANS: 1 @ 42'-0", 1 @ 44'-0", 1 @ 42'-0" SKEW 25°00'00" LT.	SIX MILE CREEK	24+13.00 "PR-1"

INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS

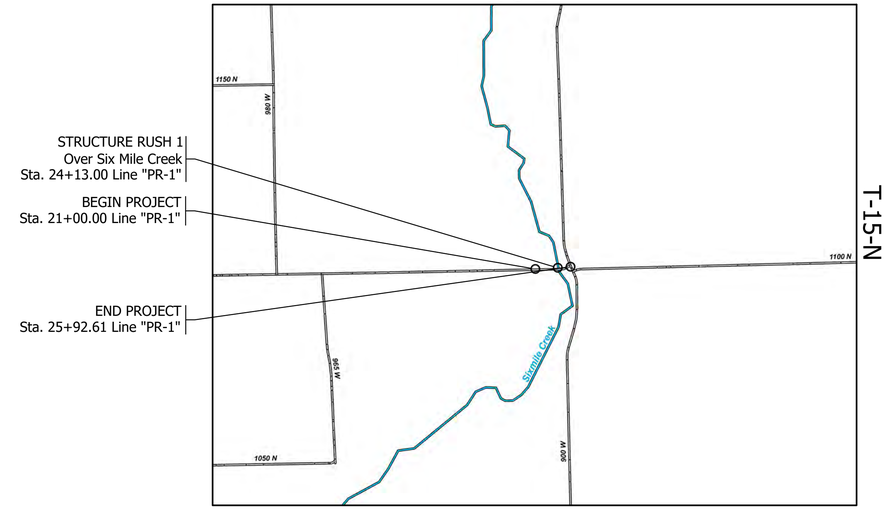
FOR SPANS OVER 20 FEET

ROUTE: C.R. 1100 N. OVER SIX MILE CREEK

PROJECT NO. 1802929 P.E.
1802929 R/W
1802929 CONST.

REPLACEMENT OF BRIDGE CARRYING C.R. 1100 N. OVER SIX MILE CREEK
PROJECT IS LOCATED MILES 0.01 MILES WEST OF C.R. 900 WEST
SECTIONS 2, 3, 10 & 11, TOWNSHIP 15 NORTH, RANGE 8 EAST
RIPLEY TOWNSHIP, RUSH COUNTY, INDIANA.

R-8-E



STRUCTURE RUSH 1
Over Six Mile Creek
Sta. 24+13.00 Line "PR-1"

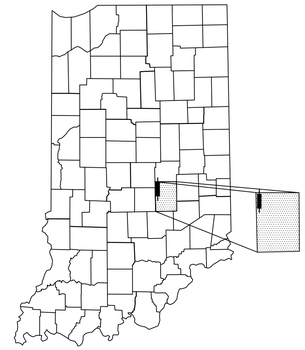
BEGIN PROJECT
Sta. 21+00.00 Line "PR-1"

END PROJECT
Sta. 25+92.61 Line "PR-1"

SCALE: 1" = 1000'

TRAFFIC DATA		
A.A.D.T.	(2017)	672 V.P.D.
A.A.D.T.	(2024)	720 V.P.D.
A.A.D.T.	(2044)	879 V.P.D.
DIRECTIONAL DISTRIBUTION		50 %
COMMERCIAL VEHICLES		5% A.A.D.T.

DESIGN DATA	
DESIGN SPEED	30 M.P.H.
PROJECT DESIGN CRITERIA	3 R NON-FREEWAY
FUNCTIONAL CLASSIFICATION	LOCAL
RURAL/URBAN	RURAL
TERRAIN	LEVEL
ACCESS CONTROL	NONE



PROJECT LOCATION SHOWN BY
RUSH COUNTY

LATITUDE: 39° 46' 16" N LONGITUDE: 85° 36' 52" W

BRIDGE LENGTH: 0.025 MI.
ROADWAY LENGTH: 0.068 MI.
TOTAL LENGTH: 0.093 MI.
MAX. GRADE: 2.25 %

HUC: 05120204020020

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES.

INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS DATED 2020 TO BE USED WITH THESE PLANS.

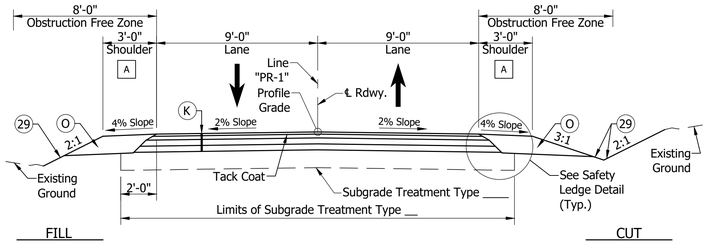
PLANS PREPARED BY: Butler Fairman and Seufert Inc. (317)713-4615 PHONE

CERTIFIED BY: . DATE

APPROVED FOR LETTING: . DATE
INDIANA DEPARTMENT OF TRANSPORTATION

BRIDGE FILE	
RUSH 1	
DESIGNATION	
1802929	
SURVEY BOOK	SHEET
ELECTRONIC	1 OF 13
CONTRACT	PROJECT
B-42073	1802929

6390



Sta. 21+00.00 "PR-1" to Sta. 23+21.22 "PR-1"
Sta. 25+03.76 "PR-1" to Sta. 25+92.61 "PR-1"

TYPICAL APPROACH SECTION

Scale: 1/4" = 1'-0"

(A) Shoulder ShallBe Paved To The Face Of Guardrail When Present

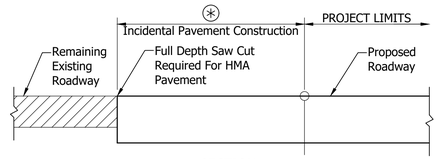
LEGEND

(K) HMA FULL DEPTH PAVEMENT
165#/Syd. QC/QA-HMA, 2, 64, Surface 9.5 mm on
275#/Syd. QC/QA-HMA, 2, 64, Intermediate 19.0 mm on
8" Compacted Agg., No. 53 (Place in 2-4" Lifts)
(No Calcium Chloride Req'd.)

(O) Variable Depth Compacted Aggregate, No. 53

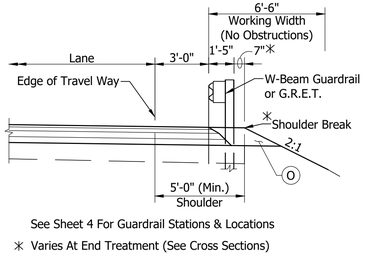
(29) Mulched Seeding, R

NOTES:
1. A safety edge shall be placed in the surface and intermediate layers of all edges of pavements that are not bound by a curb.
2. Tack Coat required between Intermediate and Surface HMA layers.



SECTION

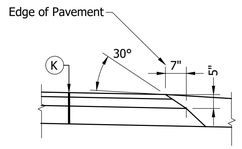
✳ West Approach: 50'-0"
East Approach: Limits As Shown In Intersection Detail on Sheet 4



See Sheet 4 For Guardrail Stations & Locations
✳ Varies At End Treatment (See Cross Sections)

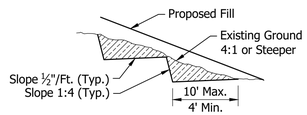
TYPICAL SECTION WITH GUARDRAIL

Scale: 1/4" = 1'-0"



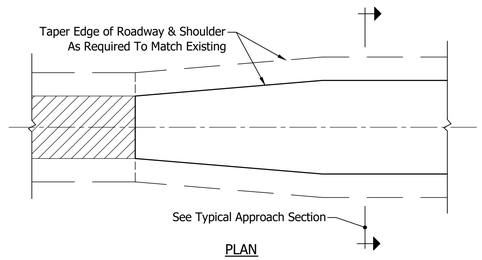
SAFETY EDGE DETAIL

Scale: 1/2" = 1'-0"



TYPICAL BENCHING DETAIL

Not to Scale

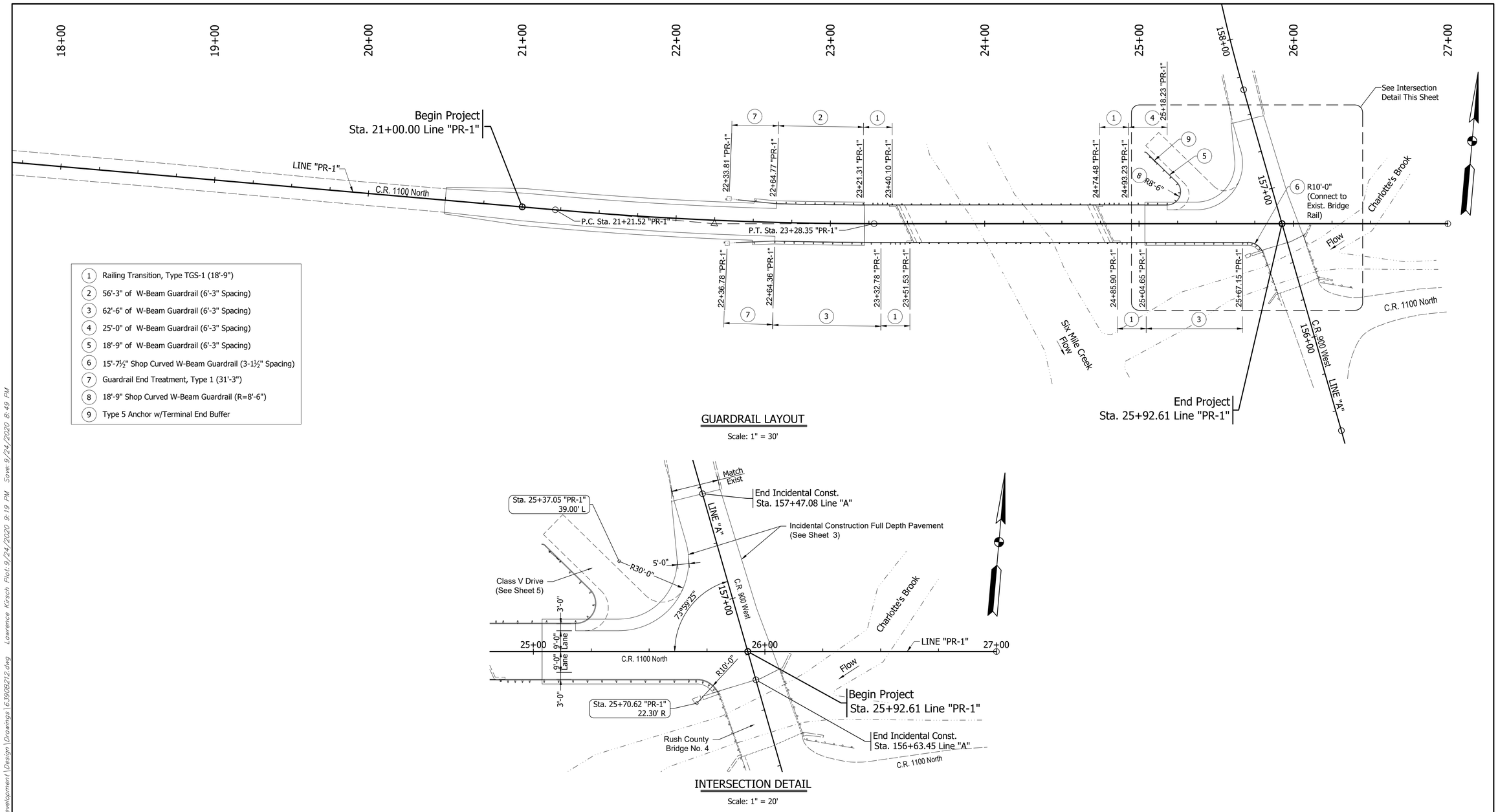


PLAN

TYPICAL DETAILS INCIDENTAL CONSTRUCTION

Not to Scale

	RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE	INDIANA DEPARTMENT OF TRANSPORTATION	HORIZONTAL SCALE: As Noted; VERTICAL SCALE: N/A; BRIDGE FILE: RUSH 1; DESIGNATION: 1802929	6390
	DESIGNED: M. MATEL DRAWN: L. KIRSCH CHECKED: Q. O'BRIEN CHECKED: M. MATEL	TYPICAL APPROACH SECTION	SURVEY BOOK; SHEET: 3 OF 13; ELECTRONIC; CONTRACT: B-42073; PROJECT: 1802929	BFS NO.



GUARDRAIL LAYOUT

Scale: 1" = 30'

INTERSECTION DETAIL

Scale: 1" = 20'

RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE

DESIGNED: M. MATEL DRAWN: L. KIRSCH

CHECKED: Q. O'BRIEN CHECKED: M. MATEL

INDIANA
DEPARTMENT OF TRANSPORTATION

GUARDRAIL LAYOUT AND INTERSECTION DETAIL

HORIZONTAL SCALE	BRIDGE FILE
As Noted	RUSH 1
VERTICAL SCALE	DESIGNATION
N/A	1802929
SURVEY BOOK	SHEET
ELECTRONIC	4 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390

Sec. 3, T. 15 N., R. 8 E.
Ripley Township
Rush County

Sec. 10, T. 15 N., R. 8 E.
Ripley Township
Rush County

Sec. 2, T. 15 N., R. 8 E.
Ripley Township
Rush County

Sec. 11, T. 15 N., R. 8 E.
Ripley Township
Rush County

Begin Project
Sta. 21+00.00 Line "PR-1"
Monument Type B Req'd.

Begin Incidental Const.
Sta. 20+50.00 Line "PR-1"

End Project
Sta. 25+92.61 Line "PR-1"
Monument Type B Req'd.

End Incidental Const.
Sta. 156+63.42 Line "A"

End Incidental Const.
Sta. 157+47.08 Line "A"

Sta. 25+67.81 "B" =
P.O.C. Sta. 157+83.91 "A"

P.C. Sta. 157+66.44 "A"

P.T. Sta. 155+36.68 "A"

P.O.T. Sta. 21+00.00 "PR-1" =
O.P.O.C. Sta. 20+97.96 "B"; 22.45' Rt.

P.C. Sta. 21+21.52 "PR-1" =
O.P.O.C. Sta. 21+19.03 "B"; 25.62' Rt.

P.I. Sta. 21+14.17 "B"
Δ = 17°00'00" Lt.

P.I. Sta. 22+25.00 "PR-1" =
O.P.O.C. Sta. 22+19.50 "B"; 43.49' Rt.
Δ = 5°00'00" Lt.
Monument Type B Req'd.

P.T. Sta. 23+28.35 "PR-1" =
O.P.O.C. Sta. 23+20.00 "B"; 56.77' Rt.

P.I. Sta. 50+00.00 "T-1-B" =
P.O.C. Sta. 23+75.00 "B"
Δ = 28°41'19" Lt.

P.T. Sta. 24+63.16 "B"

℄ STRUCTURE
Sta. 24+13.00 Line "PR-1"
Skew 25°00'00", Lt.

P.O.T. Sta. 24+12.47 "PR-1" =
P.O.T. Sta. 50+75.43 "T-1-B"
+52, Mod. Cl. V Dr. Req'd.
W=12', L=55', R=10',10'

P.O.T. Sta. 25+92.61 "PR-1" =
P.O.C. Sta. 156+76.16 "A"

P.O.T. Sta. 27+00.00 "PR-1" =
P.O.C. Sta. 156+46.54 "A";
O/S 103.22' Rt.

CURVE DATA
P.I Sta. 21+14.17 "B"
Δ = 17°00'00" Lt.
R = 2370.00'
T = 354.20'
L = 703.19'
E = 26.32'

CURVE DATA
P.I Sta. 22+25.00 "PR-1"
Δ = 5°00'00" Lt.
R = 2370.00'
T = 103.48'
L = 206.82'
E = 2.26'
No. S.E.

CURVE DATA
P.I Sta. 159+46.92 "A"
Δ = 20°27'41" Lt.
R = 1000.00'
T = 180.48'
L = 357.12'
E = 16.16'
No S.E.

LEGEND
- (K) HMA Full Depth Pavement
- (O) Compacted Aggregate, No. 53
- (29) Mulched Seeding, R

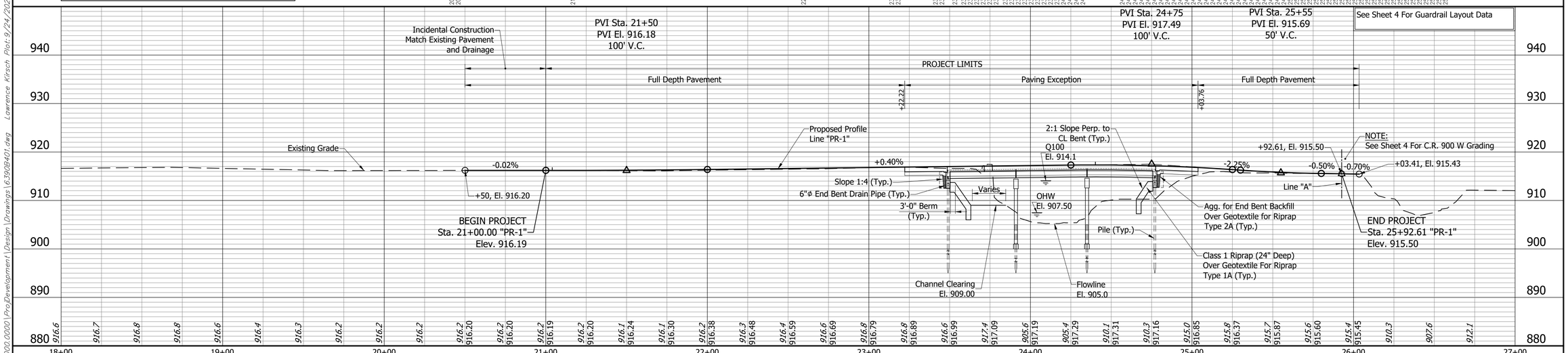
Note:
See Sheet 2 For Utility Owners

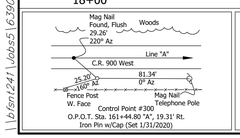
ALL R/W ON THIS SHEET DESCRIBED FROM LINE "PR-1" UNLESS OTHERWISE NOTED

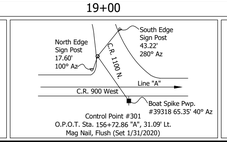
NOTE: ALL TOPOGRAPHY INFORMATION REFERENCED TO LINE "B" UNLESS NOTED.

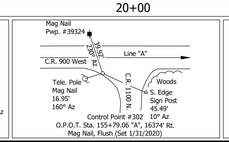
BM #2 El.
914.41' Boat Spike "Set" in Power Pole
#39318 Sta. "A", 14.39' Rt. 157+10.14

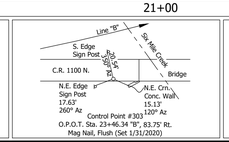
BM #5 El.
932.42' Boat Spike "Set" in Power Pole
#39296 Sta. "B", 18.09' Lt. 11+94.96

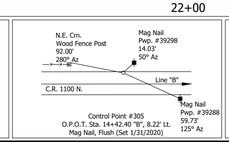












RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE

DESIGNED: M. MATEL DRAWN: L. KIRSCH

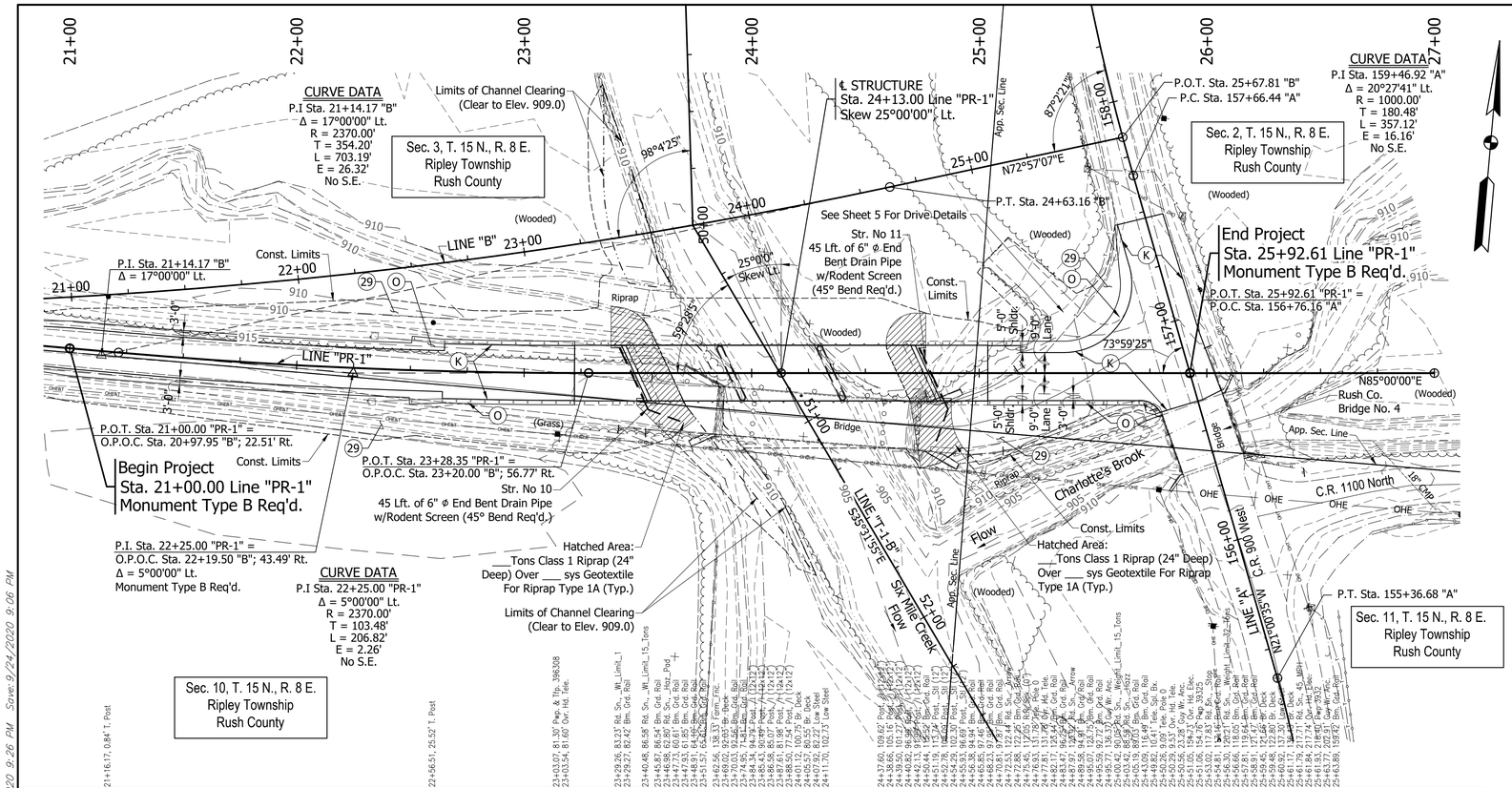
CHECKED: Q. O'BRIEN CHECKED: M. MATEL

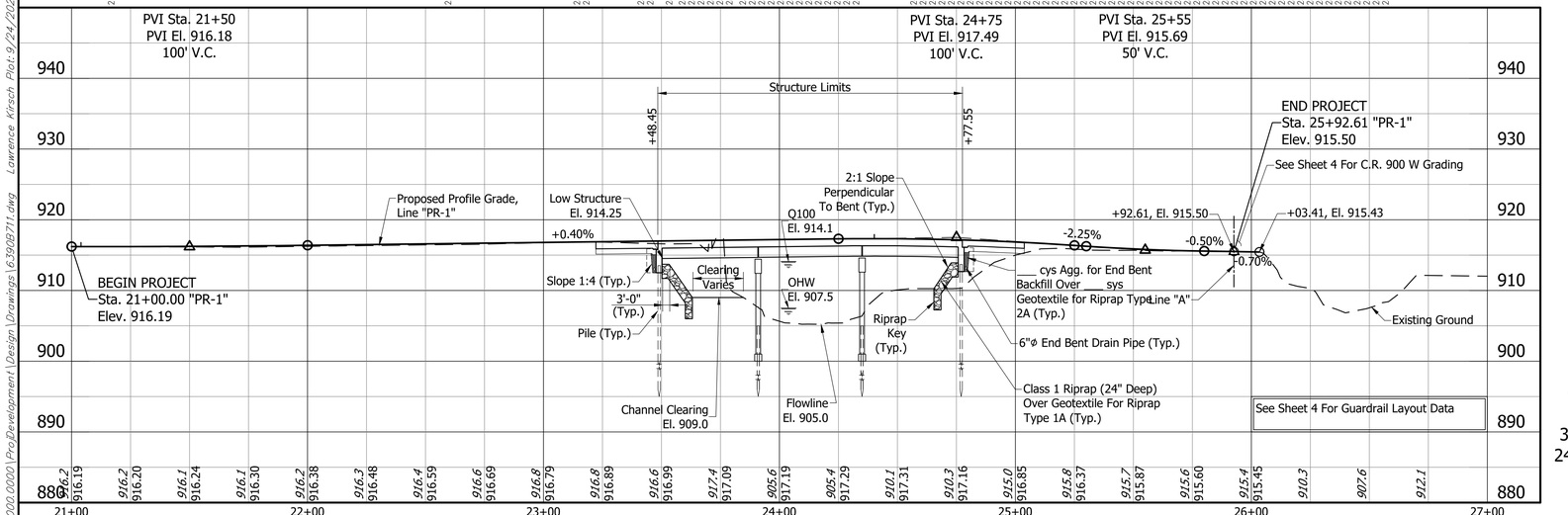
INDIANA
DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE

HORIZONTAL SCALE	BRIDGE FILE
1" = 30'-0"	RUSH 1
VERTICAL SCALE	DESIGNATION
1" = 10'-0"	1802929
SURVEY BOOK	SHEET
ELECTRONIC	5 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390





LEGEND

- (K) HMA Full Depth Pavement
- (O) Compacted Aggregate, No. 53
- (29) Mulched Seeding, R

BM #2 El. 914.41' Boat Spike "Set" in Power Pole #39318 Sta. "A", 14.39' Rt. 157+10.14

BM #5 El. 932.42' Boat Spike "Set" in Power Pole #39296 Sta. "B", 18.09' Lt. 11+94.96

ALL R/W ON THIS SHEET DESCRIBED FROM LINE "PR-1" UNLESS OTHERWISE NOTED

NOTE: ALL TOPOGRAPHY INFORMATION REFERENCED TO LINE "B" UNLESS NOTED.

HYDRAULIC DATA

ITEM	EXISTING STRUCTURE	PROPOSED STRUCTURE
DRAINAGE AREA	Sq. Mi.	Sq. Mi.
Q100 (TAILWATER)	Ft.	Ft.
DESIGN DISCHARGE Q100	Cu. Ft./Sec.	Cu. Ft./Sec.
BACKWATER Q100	Ft.	Ft.
GROSS WATERWAY AREA PROVIDED BELOW Q100	Sq. Ft.	Sq. Ft.
ROADWAY OVERFLOW	Sq. Ft.	Sq. Ft.
TOTAL WATERWAY AREA PROVIDED	Sq. Ft.	Sq. Ft.
VELOCITY THROUGH STRUCTURE	Ft./Sec.	Ft./Sec.
LOW STRUCTURE ELEVATION	Ft.	Ft.

SCOUR DATA

Q100 DISCHARGE	Cu. Ft./Sec.
Q100 ELEVATION	Ft.
Q100 MAX VELOCITY	Ft./Sec.
Q100 CONTRACTION SCOUR	Ft.
Q100 TOTAL SCOUR	Ft.
Q100 LOW SCOUR ELEVATION	Ft.
Q500 DISCHARGE	Cu. Ft./Sec.
Q500 ELEVATION	Ft.
Q500 MAX VELOCITY	Ft./Sec.
Q500 CONTRACTION SCOUR	Ft.
Q500 TOTAL SCOUR	Ft.
Q500 LOW SCOUR ELEVATION	Ft.

EARTHWORK

ITEM	QUANTITY
FILL + 15%	Cys.
COMMON EXCAVATION	Cys.
USABLE WATERWAY EXCAVATION (30%)	Cys.
BORROW	Cys.

STRUCTURE EXCAVATION

ITEM	QUANTITY
WATERWAY EXCAVATION	Cys.
WET EXCAVATION	Cys.
FOUNDATION EXCAVATION (UNCLASSIFIED)	Cys.
DRY EXCAVATION	Cys.

Note: Above Quantities Do Not Include #### Cys. For Benching. Estimated Benching Will Not Be Paid For Directly. Cost Of Benching Shall Be Included In Cost Of Common Excavation.

CONTINUOUS COMPOSITE PRESTRESSED CONCRETE BOX BEAM BRIDGE
3 SPANS: 1 @ 42'-0", 1 @ 44'-0", 1 @ 42'-0"
24'-0" CLEAR ROADWAY; SKEW 25°00'00" LT.
C.R. 1100 N. OVER SIX MILE CREEK
RUSH COUNTY

NOTES
See Sheet 2 For Utility Owners.

RECOMMENDED FOR APPROVAL: _____ . DESIGN ENGINEER DATE

DESIGNED: M. MATEL DRAWN: L. KIRSCH

CHECKED: Q. O'BRIEN CHECKED: M. MATEL

INDIANA
DEPARTMENT OF TRANSPORTATION

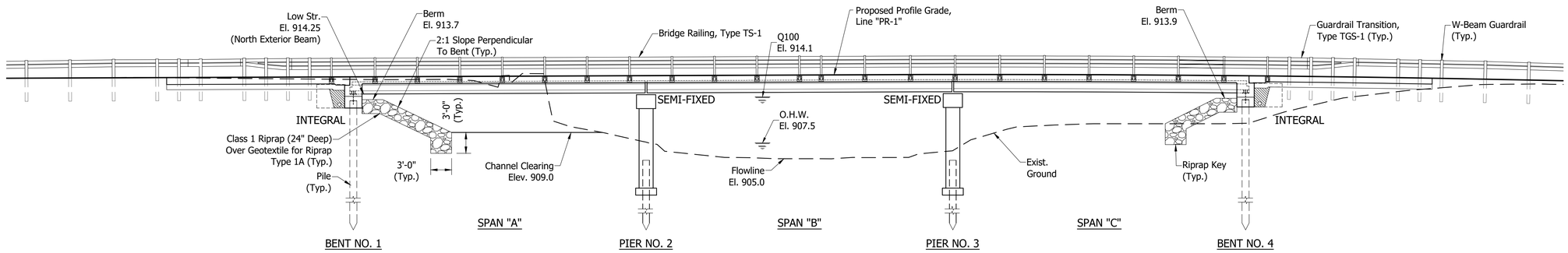
LAYOUT

HORIZONTAL SCALE	BRIDGE FILE
1" = 30'-0"	RUSH 1
VERTICAL SCALE	DESIGNATION
1" = 10'-0"	1802929
SURVEY BOOK	SHEET
ELECTRONIC	6 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390

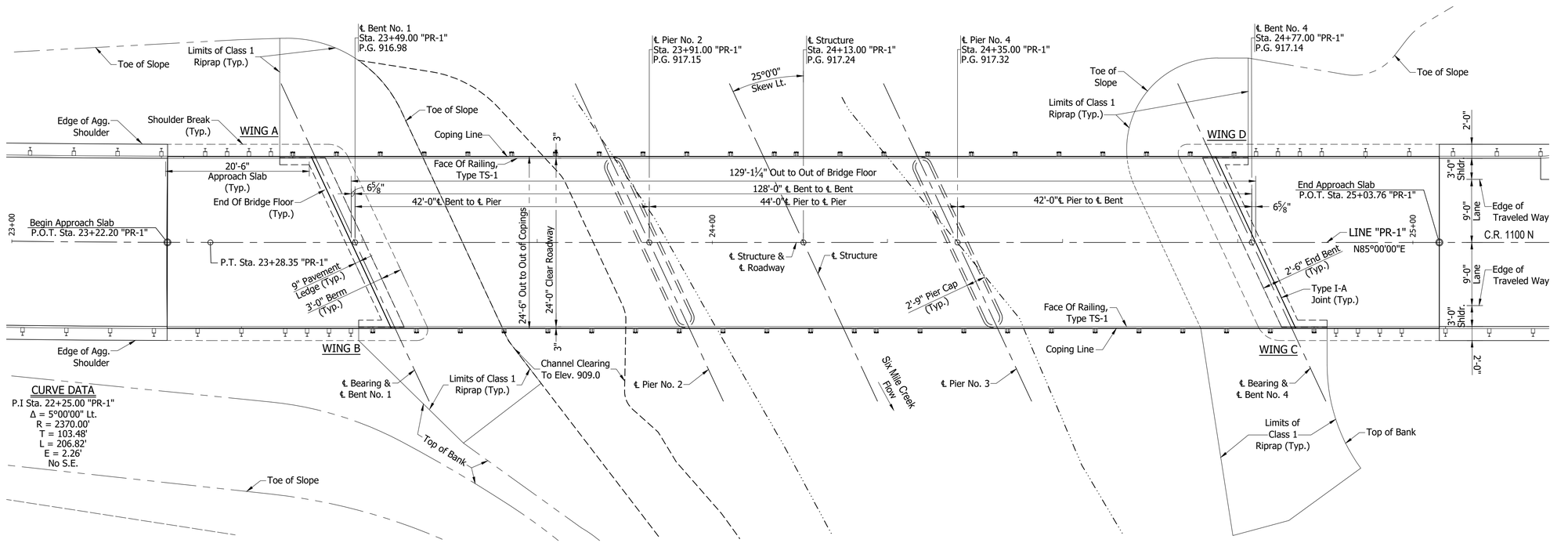
STRUCTURE TO BE BUILT ON A +0.40% GRADE & 100' VERTICAL CURVE

PVI Sta. 24+75
PVI El. 917.49
100 V.C.
+0.40% -2.25%



ELEVATION

Scale: 1/8" = 1'-0"



CURVE DATA
P.I Sta. 22+25.00 "PR-1"
Δ = 5°00'00" Lt.
R = 2370.00'
T = 103.48'
L = 206.82'
E = 2.26'
No S.E.

PLAN

Scale: 1/8" = 1'-0"

CONTINUOUS COMPOSITE PRESTRESSED CONCRETE
BOX BEAM BRIDGE
3 SPANS: 1 @ 42'-0", 1 @ 44'-0", 1 @ 42'-0"
24'-0" CLEAR ROADWAY; SKEW 25°00'00" LT.
C.R. 1100 N. OVER SIX MILE CREEK
RUSH COUNTY

NOTE:
See Sheet 8 For Typical Section

RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE

DESIGNED: M. MATEL DRAWN: L. KIRSCH

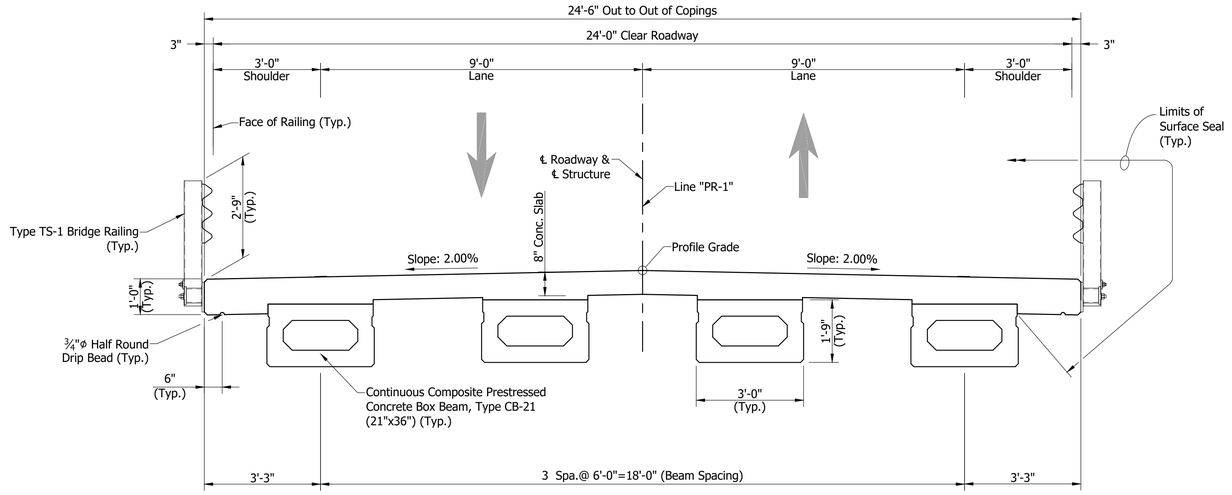
CHECKED: Q. O'BRIEN CHECKED: M. MATEL

INDIANA
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN - PLAN & ELEVATION VIEWS

HORIZONTAL SCALE	BRIDGE FILE
N/A	RUSH 1
VERTICAL SCALE	DESIGNATION
N/A	1802929
SURVEY BOOK	SHEET
ELECTRONIC	7 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390



TYPICAL SECTION

Scale: 1/2" = 1'-0"

GENERAL NOTES

The existing structure shall be removed.

Steel H-Piles with shoes shall be driven to the Nominal Driving Resistance.

Epoxy coated reinforcing bars shall be required in various portions of the structure as shown.

Reinforcing bars covering shall be 2 ½" in top of approach slabs.

Reinforcing bars covering shall be 2 ½" in top and 1" in bottom of floor slabs and 2" in all other areas unless noted.

Reinforcing bars shall be A.S.T.M. A615, Grade 60.

Concrete shall be Class C in end bents and floor slab.

Concrete shall be Class A in all portions of the project not noted above.

Chamfer exposed corners of concrete 1" unless noted.

Surface seal shall be required on various areas of the structure as shown. Estimated quantity = ____ Sft.

DESIGN DATA

LIVE LOAD:

Designed for HL-93 loading, in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Edition, 2017 and its subsequent revisions.

DEAD LOAD:

Actual weight plus 35 psf (composite) for future wearing surface and 15 psf for permanent metal deck forms.

FLOOR SLAB:

Designed with a structural depth of 7 ½" plus ½" sacrificial wearing surface.

SEAT ELEVATIONS

All bridge seat elevations were calculated using design camber of beams, dead load deflection of slab and, where applicable, an allowance for Profile Grade Vertical curve and beam notches so that the top of beam will be 3/4" minimum below the bottom of slab at the center of span unless otherwise noted on the floor details.

Fillet depth to vary along length of beam to compensate for residual camber of beams, beam notches and Profile Grade Vertical Curve. Actual cambers which are greater or less than design cambers will be accounted for by reducing or increasing the fillets. The beams shall not extend into the slab more than 1"

DESIGN STRESSES

MATERIAL DESIGN STRENGTHS:

Class "C" Concrete	F'c = 4,000 p.s.i.
Class "A" Concrete	F'c = 3,500 p.s.i.
Reinforcing Steel (Grade 60)	Fy = 60,000 p.s.i.

SEISMIC DESIGN DATA:

Seismic Performance Zone	TBD
Acceleration Coefficient	TBD
Seismic Soil Profile Type	TBD

WIND LOAD:

Designed for 70 mph horizontal wind load in accordance with LRFD 3.8.1.

CONSTRUCTION LOADING:

The exterior girder has been checked for strength, deflection, and overturning using the construction loads shown. Cantilever overhang brackets were assumed for support of the deck overhang past the edge of the exterior girder. Finishing machine was assumed to be supported 6 in. outside the vertical coping form. The top overhang brackets were assumed to be located 6 in. past the edge of the vertical coping form. The bottom overhang brackets were assumed to be braced against the intersection of the girder bottom flange and web.

DECK FALSEWORK LOADS:

Designed for 15 psf for permanent metal stay-in-place deck forms, removable deck forms, and 2 ft. exterior walkway.

CONSTRUCTION LIVE LOAD:

Designed for 20 psf extending 2 ft. past the edge of coping and 75 lb/ft vertical force applied at a distance of 6 in. outside the face of coping over a 30 foot length of the deck centered with the finishing machine.

FINISHING-MACHINE LOAD:

4500 lb distributed over 10 ft. along the coping.

CONTINUOUS COMPOSITE PRESTRESSED CONCRETE
BOX BEAM BRIDGE
3 SPANS: 1 @ 42'-0", 1 @ 44'-0", 1 @ 42'-0"
24'-0" CLEAR ROADWAY; SKEW 25°00'00" LT.
C.R. 1100 N. OVER SIX MILE CREEK
RUSH COUNTY

RECOMMENDED FOR APPROVAL: _____ DESIGN ENGINEER _____ DATE

DESIGNED: M. MATEL DRAWN: L. KIRSCH

CHECKED: Q. O'BRIEN CHECKED: M. MATEL

INDIANA
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN - TYPICAL SECTION

HORIZONTAL SCALE	BRIDGE FILE
N/A	RUSH 1
VERTICAL SCALE	DESIGNATION
N/A	1802929
SURVEY BOOK	SHEET
ELECTRONIC	8 OF 13
CONTRACT	PROJECT
B-42073	1802929

BFS NO. 6390

Appendix C

Early Coordination

SAMPLE EARLY COORDINATION LETTER

Butler Fairman Seufert
CIVIL ENGINEERS

Headquarters:
8450 Westfield Blvd., Suite 300
Indianapolis, IN 46240-5920
T 317.713.4615
F 317.713.4616
E bfs@BFSEngr.com
www.BFSEngr.com

Branch Locations:
Fort Wayne
Jeffersonville
Lafayette
Merrillville
Plainfield

Founded 1961

Member ACEC INDIANA

July 12, 2020

{See Attached List}

Re: Des. No.: 1802929, Bridge Project, Rush County Bridge No. 1 carrying County Road (CR) 1100 N over Six Mile Creek, Rush County, IN

Dear Interested Agency:

The Rush County Board of Commissioners along with the Federal Highway Administration (FHWA), intends to proceed with a project involving the aforementioned bridge in Rush County. This letter is part of the early coordination phase of the environmental review process. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. ***Please use the above designation numbers and description in your reply.*** *We will incorporate your comments into a study of the project's environmental impacts.*

This project is located on CR 1100 N, 0.1 mile west of CR 900 W, in Rush County. This section of CR 1100 N is a two-lane Local Rural Road. The existing CR 1100 N approach cross section consists of one 8-ft.-wide lane provided in both directions. Land use in the vicinity of the project is primarily agricultural.

The existing Rush County Bridge No. 1 (NBI: 7000001) over Six Mile Creek is a two-lane, 3-span steel, multi-beam bridge constructed in 1992 with a maximum span of 59 ft. and overall width of 22.5 ft., with a structure length of 94.8 ft. On the most recent INDOT Bridge Inspection, dated May 14, 2019, both the superstructure and substructure were rated at a 5 (out of 9) indicating fair condition, for rusting, pitting, and flaking paint; while the wearing surface was given a rating of 4, indicating poor condition, due to rutting and seepage. These ratings contributed to the structure's overall sufficiency rating of 47.2 (out of 100), indicating poor condition. The approximate existing right-of-way is 8.5 ft. each side of centerline throughout the project area.

The current proposed project would replace the existing bridge over Six Mile Creek as well as realign the bridge to the north to improve the safety of the intersection and the horizontal alignment of CR 1100 N. The two alternatives under consideration include either a 3-span

continuous concrete box beam bridge or a single span bulb t-beam structure; both would have an overall length of 135 ft. and a clear roadway width of 28 ft. The project requires the acquisition of approximately 3.5 acres of permanent right-of-way. The center point of the proposed bridge would be aligned approximately 85 ft. north of the existing bridge. Proposed right-of-way widths along CR 1100N would be approximately 50 ft. from centerline. The project limits would be approximately 1350 ft. in length along CR 1000 N. The preferred maintenance of traffic would be a road closure with a detour. A temporary runaround will not be used.

The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to "Using the USFWS's Information for Planning and Consultation (IPaC) System for Listed Bat Consultation for INDOT Projects".

Butler, Fairman, & Seufert, Inc. will perform waters and wetlands determinations and a biological assessment to identify any ecological resources that may be present. Butler, Fairman, & Seufert, Inc. will also be investigating the areas of additional right-of-way for archaeological and historic resources for compliance with Section 106. The results of this investigation will be forwarded to the State Historic Preservation Officer for review and concurrence.

Please review the information contained in this early coordination packet and provide a written evaluation of potential impacts upon resources under your jurisdiction. Should we not receive your response ***within thirty (30) calendar days*** *from the date of this letter, it will be assumed that your agency feels that there will be no adverse effects incurred as a result of the proposed project. If you have any questions, you may contact Brittney Layton, Environmental Scientist at BLayton@bfsengr.com, or (317) 713-4616, or 8450 Westfield Blvd, Suite 300, Indianapolis, IN 46240. Thank you in advance for your input. Alternatively, you may contact Don McGhghy, INDOT Project Manager, at 317.467.3920, or DMcGhghy@indot.in.gov.*

On behalf of Rush County Board of Commissioners,
Butler, Fairman, & Seufert,

Brittney Layton, M.A.
Environmental Scientist
cc

Enclosures:

Project Description
State Map
Aerial Map
USGS Knightstown Quadrangle Map
Site Photographs/Photo Key
ETR Rush County

ATTACHMENTS REMOVED FOR SPACE CONSERVATION. SEE APPENDICES B, E, and F.

Ms. Robin McWilliams
U.S. Fish and Wildlife Service
Bloomington Field Office
620 South Walker Street
Bloomington, IN 47403-2121

Robert Dirks
Planning & Environmental Specialist
Federal Highway Administration
Room 254, Federal Office Building
575 North Pennsylvania Street
Indianapolis, IN 46204

Bert Frost, Midwest Regional Director
National Park Service, Department of Interior
601 Riverfront Drive
Omaha, NE 68102

Jenni Curry, INDOT Environmental Manager
INDOT Greenfield District
32 South Broadway
Greenfield, IN 46140

Jerry Raynor, State Conservationist
Natural Resources Conservation Service
6013 Lakeside Boulevard
Indianapolis, IN 46204

Christie Stanifer, Environmental Coordinator
Division of Water, Environmental Unit
Indiana Department of Natural Resources
402 West Washington Street, W-264
Indianapolis, IN 46204-2641

Rickie Clark, Hearings Manager
Mary Wright, Hearing Examiner
INDOT Office of Communications
100 North Senate Avenue, Room 642
Indianapolis, IN 46204

Paul Lehmann, Acting Regional Environmental Office
Field Environmental Officer
Department of Housing and Urban Development
Chicago Regional Office
Metcalf Federal Building
77 West Jackson Boulevard, Room 2401
Chicago, IL 60604

Gregory McKay
U.S. Army Corps of Engineers
Louisville District
ATTN: CELRL-RDN
P.O. Box 59
Louisville, KY 40201-0059

Marvin Rees, Rush County Surveyor
101 East Second Street, Room 104
Rushville, IN 46173

Rush County Commissioners
101 East Second Street, Room 102
Rushville, IN 46173

Jerry Sitton, Rush County Highway Superintendent
1352 East State Road 44
Rushville, IN 46173

Sheriff Alan Rice, Rush County Sheriff
131 East First Street
Rushville, IN 46173

Indiana Department of Environmental Management (IDEM)
Proposed Roadway Construction Projects Letter
{http://www.in.gov/idem/5284.htm}

IDEM Wellhead Proximity Determinator
Electronic Review of Location
{http://www.in.gov/idem/cleanwater/pages/wellhead

Indiana Geological Survey
{https://igs.indiana.edu/eAssessment/}

Gregg Duke, Floodplain Administrator
101 East Second Street, Room 211
Rushville, IN 46173

NOTE: The project scope was changed and impacts reduced after early coordination letters were sent out, which included the following Project Description. Therefore, the discussion below does not match. However, the Purpose & Need remained the same.

PROJECT DESCRIPTION
Replacement of Rush County Bridge No. 1
Rush County, Indiana
Des. No. 1802929

Rush County Board of Commissioners proposes replacement of the Rush County Bridge No. 1 which carries County Road (CR) 1100 North over the Six Mile Creek.

The existing bridge is a three (3) span railroad flatcar bridge with a rolled steel beam approach span on stone abutment and open pile bent piers approximately 94.8 ft long with a width of 22.5 ft.

The new bridge will be a three (3) span concrete beam structure approximately 135 ft. long. The total project length will be approximately 1,000 ft. in lrngth along CR 1100 N with an incidental length of 350 ft. along CR 900 W due to the intersection of these roads east of the bridge. The proposed project will also include the realignment of the centerline of the existing road by relocating the bridge a maximum of 85 ft. to the north in order to straighten out the horizontal alignment.

Purpose and Need:

The need for this project stems from the deteriorated condition of the bridge that has resulted from use over time. The bridge was constructed in 1992 and has deteriorated to the point where significant work is required to provide a safe crossing for County Road 1100 N over Six Mile Creek.

The purpose of the project is to address the deteriorating condition of Rush County Bridge No. 1. It is in poor condition, with scouring and cracking throughout the structure. The wearing surface received a rating of 4, indicating poor condition, while the deck, superstructure, and substructure received a rating of 5, contributing towards the sufficiency rating of 47.2. The roadway leading up to the bridge from the east end has a curved alignment causing sight distance issues, and the approach width is inadequate.

The proposed project will include removing the existing structure and replacing it with a two-lane, three (3) span continuous concrete box beam bridge or a single span bulb t-beam structure; both would have an overall length of 135 ft. Work will include the realignment of the center line of the road by relocating the bridge a maximum of 85 ft. to the north and provide a perpendicular intersection with CR 900 W to alleviate the current sight distance issues. The overall length of the proposed project is approximately 1000 ft. along CR 1100 N and an additional incidental length of 350 ft. along CR 900 W.

The project is located on County Road 1100 N over Six Mile Creek immediately west of the intersection with CR 900 W, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle.

At this time, maintenance of traffic (MOT) has not been determined. As project plans develop and MOT has been decided, coordination with Rush County and the Town of Charlottesville shall occur.

General Existing and Proposed Parameters

	Existing	Proposed
Total Project Length:	N/A	1350 ft.
Right-of-Way:		
Permanent:	8.5 ft. either side of the roadway centerline	Varies from existing to 50 ft. either side of the roadway centerline 3.5 acres fallow field
Temporary:	N/A	No temporary right-of-way acquisition is anticipated
Vertical Alignment:	Level	No change
Horizontal Alignment	East/west	No change
Land Use:	Agricultural	No change

Channelization, Bank Shaping and In-Stream Work:

The existing bridge will be completely removed. Both streambanks will be re-shaped from vertical concrete to 2:1 concrete spill slopes. No other channel work is anticipated.

Temporary Runaround and Equipment Crossing: None

Design Speed:		25mph/30 mph
Posted Speed:	30 mph	30 mph
Average Daily Traffic	672 (2019)	840 (2041)
Truck Traffic	5.0%	

Existing and Proposed Roadway Design – CR 1100 North

	Existing	Proposed
Pavement Width:	21 ft.	20 ft.
Number of Lanes:	2 @ 8 ft.	2 @ 10 ft.
Striped Median:	N/A	N/A
Surface:	Asphalt	Asphalt
Shoulders:	0.5 ft.	6 ft.
Curb and gutter:	N/A	N/A
Sidewalk:	None	
Grass Buffer:	N/A	N/A
Functional Classification:	Rural Local Road	Rural Local Road

Existing and Proposed Bridge Design - Rush County Bridge 1 (1992)

	Existing	Proposed
Length:	94.8 ft.	135 ft.
Width:	22.5 ft.	28.5 ft.
Clear Roadway:		
Horizontal:	21.0 ft.	28 ft.
Vertical:	Unlimited	Unlimited
Number of Lanes:	2 @ 10 ft.	2 @ 10 ft.
Median:	None.	None
Shoulders:	2 @ 0.5 ft.	2 @ 2.0 ft.
Sidewalks:	None	None1
Curbs:	0.75 ft.	None
Surface:	Concrete	No Change
Type:	Concrete Multi-Beam Bridge	Concrete Multi-Beam Bridge Single Span Bulb T-Beam Bridge

Additional Design Parameters Unique to the Project:

Standard INDOT erosion control measures will be used.

Suspected riparian wetland areas exist in the immediate southeast and southwest quadrants of the bridge. A Waters of the US report will be completed, and coordination with IDEM's Section 401 Water Quality Certification program staff and the US Army Corps of Engineers (Section 404 program staff) will occur. Any temporary wetland impacts may require a restoration plan as part of Section 401/404 permitting requirements.

Indiana Department of Environmental Management

We Protect Hoosiers and Our Environment.

100 North Senate Avenue - Indianapolis, IN 46204
(800) 451-6027 - (317) 232-8603 - www.idem.IN.gov

Rush County Board of Commissioners
Jerry Sitton, Highway Superintendent
101 East Second Street, Room 102
Rushville , IN 46173

Butler, Fairman, & Seufert
Brittney Layton
8450 Westfield Blvd
Suite 300
Indianapolis , IN 46240

Date

To Engineers and Consultants Proposing Roadway Construction Projects:

RE: Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN
This letter from the Indiana Department of Environmental Management (IDEM) serves as a standardized response to enquiries inviting IDEM comments on roadway construction, reconstruction, or other improvement projects within existing roadway corridors when the proposed scope of the project is beneath the threshold requiring a formal National Environmental Policy Act-mandated Environmental Assessment or Environmental Impact Statement. As the letter attempts to address all roadway-related environmental topics of potential concern, it is possible that not every topic addressed in the letter will be applicable to your particular roadway project.

For additional information on specific roadway-related topics of interest, please visit the appropriate Web pages cited below, many of which provide contact information for persons within the various program areas who can answer questions not fully addressed in this letter. Also please be mindful that some environmental requirements may be subject to change and so each person intending to include a copy of this letter in their project documentation packet is advised to download the most recently revised version of the letter; found at: http://www.in.gov/idem/5283.htm (http://www.in.gov/idem/5283.htm).

To ensure that all environmentally-related issues are adequately addressed, IDEM recommends that you read this letter in its entirety, and consider each of the following issues as you move forward with the planning of your proposed roadway construction, reconstruction, or improvement project:

WATER AND BIOTIC QUALITY

1. Section 404 of the Clean Water Act requires that you obtain a permit from the U.S. Army Corps of Engineers (USACE) before discharging dredged or fill materials into any wetlands or other waters, such as rivers, lakes, streams, and ditches. Other activities regulated include the relocation, channelization, widening, or other such alteration of a stream, and the mechanical clearing (use of heavy construction equipment) of wetlands. Thus, as a project owner or sponsor,

it is your responsibility to ensure that no wetlands are disturbed without the proper permit. Although you may initially refer to the U.S. Fish and Wildlife Service National Wetland Inventory maps as a means of identifying potential areas of concern, please be mindful that those maps do not depict jurisdictional wetlands regulated by the USACE or the Department of Environmental Management. A valid jurisdictional wetlands determination can only be made by the USACE, using the 1987 Wetland Delineation Manual.

USACE recommends that you have a consultant check to determine whether your project will abut, or lie within, a wetland area. To view a list of consultants that have requested to be included on a list posted by the USACE on their Web site, see USACE Permits and Public Notices (http://www.lrl.usace.army.mil/orf/default.asp) (http://www.lrl.usace.army.mil/orf /default.asp (http://www.lrl.usace.army.mil/orf/default.asp)) and then click on "Information" from the menu on the right-hand side of that page. Their "Consultant List" is the fourth entry down on the "Information" page. Please note that the USACE posts all consultants that request to appear on the list, and that inclusion of any particular consultant on the list does not represent an endorsement of that consultant by the USACE, or by IDEM.

Much of northern Indiana (Newton, Lake, Porter, LaPorte, St. Joseph, Elkhart, LaGrange, Steuben, and Dekalb counties; large portions of Jasper, Starke, Marshall, Noble, Allen, and Adams counties; and lesser portions of Benton, White, Pulaski, Kosciusko, and Wells counties) is served by the USACE District Office in Detroit (313-226-6812). The central and southern portions of the state (large portions of Benton, White, Pulaski, Kosciosko, and Wells counties; smaller portions of Jasper, Starke, Marshall , Noble, Allen, and Adams counties; and all other Indiana counties located in north-central, central, and southern Indiana) are served by the USACE Louisville District Office (502-315-6733).

Additional information on contacting these U.S. Army Corps of Engineers (USACE) District Offices, government agencies with jurisdiction over wetlands, and other water quality issues, can be found at http://www.in.gov/idem/4396.htm (http://www.in.gov/idem/4396.htm). IDEM recommends that impacts to wetlands and other water resources be avoided to the fullest extent.

2. In the event a Section 404 wetlands permit is required from the USACE, you also must obtain a Section 401 Water Quality Certification from the IDEM Office of Water Quality Wetlands Program. To learn more about the Wetlands Program, visit: http://www.in.gov/idem/4384.htm (http://www.in.gov/idem/4384.htm).

3. If the USACE determines that a wetland or other water body is isolated and not subject to Clean Water Act regulation, it is still regulated by the state of Indiana . A State Isolated Wetland permit from IDEM's Office of Water Quality (OWQ) is required for any activity that results in the discharge of dredged or fill materials into isolated wetlands. To learn more about isolated wetlands, contact the OWQ Wetlands Program at 317-233-8488.

4. If your project will involve over a 0.5 acre of wetland impact, stream relocation, or other large-scale alterations to water bodies such as the creation of a dam or a water diversion, you should seek additional input from the OWQ Wetlands Program staff. Consult the Web at: http://www.in.gov/idem/4384.htm (http://www.in.gov/idem/4384.htm) for the appropriate staff contact to further discuss your project.

5. Work within the one-hundred year floodway of a given water body is regulated by the Department of Natural Resources, Division of Water. The Division issues permits for activities regulated under the follow statutes:
    - IC 14-26-2 Lakes Preservation Act 312 IAC 11
    - IC 14-26-5 Lowering of Ten Acre Lakes Act No related code
    - IC 14-28-1 Flood Control Act 310 IAC 6-1
    - IC 14-29-1 Navigable Waterways Act 312 IAC 6
    - IC 14-29-3 Sand and Gravel Permits Act 312 IAC 6
    - IC 14-29-4 Construction of Channels Act No related code

    For information on these Indiana (statutory) Code and Indiana Administrative Code citations, see the DNR Web site at: http://www.in.gov/dnr/water/9451.htm (http://www.in.gov/dnr/water/9451.htm) . Contact the DNR Division of Water at 317-232-4160 for further information.

    The physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies should be limited to only that which is absolutely necessary to complete the project. The shade provided by the large overhanging trees helps maintain proper stream temperatures and dissolved oxygen for aquatic life.

6. For projects involving construction activity (which includes clearing, grading, excavation and other land disturbing activities) that result in the disturbance of one (1), or more, acres of total land area, contact the Office of Water Quality – Watershed Planning Branch (317/233-1864) regarding the need for of a Rule 5 Storm Water Runoff Permit. Visit the following Web page
    - http://www.in.gov/idem/4902.htm (http://www.in.gov/idem/4902.htm)

    To obtain, and operate under, a Rule 5 permit you will first need to develop a Construction Plan (http://www.in.gov/idem/4917.htm#constreq (http://www.in.gov/idem/4917.htm#constreq)), and as described in 327 IAC 15-5-6.5 (http://www.in.gov/legislative/iac/T03270/A00150 [PDF] (http://www.in.gov/legislative/iac/T03270/A00150.PDF), pages 16 through 19). Before you may apply for a Rule 5 Permit, or begin construction, you must submit your Construction Plan to your county Soil and Water Conservation District (SWCD) (http://www.in.gov/isda/soil/contacts/map.html (http://www.in.gov/isda/soil/contacts/map.html)).

    Upon receipt of the construction plan, personnel of the SWCD or the Indiana Department of Environmental Management will review the plan to determine if it meets the requirements of 327 IAC 15-5. Plans that are deemed deficient will require re-submittal. If the plan is sufficient you will be notified and instructed to submit the verification to IDEM as part of the Rule 5 Notice of Intent (NOI) submittal. Once construction begins, staff of the SWCD or Indiana Department of Environmental Management will perform inspections of activities at the site for compliance with the regulation.

    Please be mindful that approximately 149 Municipal Separate Storm Sewer System (MS4) areas are now being established by various local governmental entities throughout the state as part of the implementation of Phase II federal storm water requirements. All of these MS4 areas will eventually take responsibility for Construction Plan review, inspection, and enforcement. As these

MS4 areas obtain program approval from IDEM, they will be added to a list of MS4 areas posted on the IDEM Website at: http://www.in.gov/idem/4900.htm (http://www.in.gov/idem/4900.htm).

If your project is located in an IDEM-approved MS4 area, please contact the local MS4 program about meeting their storm water requirements. Once the MS4 approves the plan, the NOI can be submitted to IDEM.

Regardless of the size of your project, or which agency you work with to meet storm water requirements, IDEM recommends that appropriate structures and techniques be utilized both during the construction phase, and after completion of the project, to minimize the impacts associated with storm water runoff. The use of appropriate planning and site development and appropriate storm water quality measures are recommended to prevent soil from leaving the construction site during active land disturbance and for post construction water quality concerns. Information and assistance regarding storm water related to construction activities are available from the Soil and Water Conservation District (SWCD) offices in each county or from IDEM.

7. For projects involving impacts to fish and botanical resources, contact the Department of Natural Resources - Division of Fish and Wildlife (317/232-4080) for addition project input.

8. For projects involving water main construction, water main extensions, and new public water supplies, contact the Office of Water Quality - Drinking Water Branch (317-308-3299) regarding the need for permits.

9. For projects involving effluent discharges to waters of the State of Indiana , contact the Office of Water Quality - Permits Branch (317-233-0468) regarding the need for a National Pollutant Discharge Elimination System (NPDES) permit.

10. For projects involving the construction of wastewater facilities and sewer lines, contact the Office of Water Quality - Permits Branch (317-232-8675) regarding the need for permits.

AIR QUALITY

The above-noted project should be designed to minimize any impact on ambient air quality in, or near, the project area. The project must comply with all federal and state air pollution regulations. Consideration should be given to the following:

1. Regarding open burning, and disposing of organic debris generated by land clearing activities; some types of open burning are allowed (http://www.in.gov/idem/4148.htm (http://www.in.gov/idem/4148.htm)) under specific conditions. You also can seek an open burning variance from IDEM.

   However, IDEM generally recommends that you take vegetative wastes to a registered yard waste composting facility or that the waste be chipped or shredded with composting on site (you must register with IDEM if more than 2,000 pounds is to be composted; contact 317/232-0066). The finished compost can then be used as a mulch or soil amendment. You also may bury any vegetative wastes (such as leaves, twigs, branches, limbs, tree trunks and stumps) onsite, although burying large quantities of such material can lead to subsidence problems, later on.

Reasonable precautions must be taken to minimize fugitive dust emissions from construction and demolition activities. For example, wetting the area with water, constructing wind barriers, or treating dusty areas with chemical stabilizers (such as calcium chloride or several other commercial products). Dirt tracked onto paved roads from unpaved areas should be minimized.

Additionally, if construction or demolition is conducted in a wooded area where blackbirds have roosted or abandoned buildings or building sections in which pigeons or bats have roosted for 3-5 years precautionary measures should be taken to avoid an outbreak of histoplasmosis. This disease is caused by the fungus Histoplasma capsulatum, which stems from bird or bat droppings that have accumulated in one area for 3-5 years. The spores from this fungus become airborne when the area is disturbed and can cause infections over an entire community downwind of the site. The area should be wetted down prior to cleanup or demolition of the project site. For more detailed information on histoplasmosis prevention and control, please contact the Acute Disease Control Division of the Indiana State Department of Health at (317) 233-7272.

2. The U.S. EPA and the Surgeon General recommend that people not have long-term exposure to radon at levels above 4 pCi/L. (For a county-by-county map of predicted radon levels in Indiana, visit: http://www.in.gov/idem/4145.htm (http://www.in.gov/idem/4145.htm).)

   The U.S. EPA further recommends that all homes (and apartments within three stories of ground level) be tested for radon. If in-home radon levels are determined to be 4 pCi/L, or higher, EPA recommends a follow-up test. If the second test confirms that radon levels are 4 pCi/L, or higher, EPA recommends the installation of radon-reduction measures. (For a list of qualified radon testers and radon mitigation (or reduction) specialists visit: http://www.in.gov/isdh/regsvcs/radhealth/pdfs/radon_testers_mitigators_list.pdf (http://www.in.gov/isdh/regsvcs/radhealth/pdfs/radon_testers_mitigators_list.pdf).) It also is recommended that radon reduction measures be built into all new homes, particularly in areas like Indiana that have moderate to high predicted radon levels.

   To learn more about radon, radon risks, and ways to reduce exposure visit: http://www.in.gov/isdh/regsvcs/radhealth/radon.htm (http://www.in.gov/isdh/regsvcs/radhealth/radon.htm), http://www.in.gov/idem/4145.htm (http://www.in.gov/idem/4145.htm), or http://www.epa.gov/radon/index.html (http://www.epa.gov/radon/index.html).

3. With respect to asbestos removal: all facilities slated for renovation or demolition (except residential buildings that have (4) four or fewer dwelling units and which will not be used for commercial purposes) must be inspected by an Indiana-licensed asbestos inspector prior to the commencement of any renovation or demolition activities. If regulated asbestos-containing material (RACM) that may become airborne is found, any subsequent demolition, renovation, or asbestos removal activities must be performed in accordance with the proper notification and emission control requirements.

   If no asbestos is found where a renovation activity will occur, or if the renovation involves removal of less than 260 linear feet of RACM off of pipes, less than 160 square feet of RACM off of other facility components, or less than 35 cubic feet of RACM off of all facility components, the

owner or operator of the project does not need to notify IDEM before beginning the renovation activity.

For questions on asbestos demolition and renovation activities, you can also call IDEM's Lead/Asbestos section at 1-888-574-8150.

However, in all cases where a demolition activity will occur (even if no asbestos is found), the owner or operator must still notify IDEM 10 working days prior to the demolition, using the form found at http://www.in.gov/icpr/webfile/formsdiv/44593.pdf (http://www.in.gov/icpr/webfile/formsdiv/44593.pdf).

Anyone submitting a renovation/demolition notification form will be billed a notification fee based upon the amount of friable asbestos containing material to be removed or demolished. Projects that involve the removal of more than 2,600 linear feet of friable asbestos containing materials on pipes, or 1,600 square feet or 400 cubic feet of friable asbestos containing material on other facility components, will be billed a fee of $150 per project; projects below these amounts will be billed a fee of $50 per project. All notification remitters will be billed on a quarterly basis.

For more information about IDEM policy regarding asbestos removal and disposal, visit: http://www.in.gov/idem/4983.htm (http://www.in.gov/idem/4983.htm).

4. With respect to lead-based paint removal: IDEM encourages all efforts to minimize human exposure to lead-based paint chips and dust. IDEM is particularly concerned that young children exposed to lead can suffer from learning disabilities. Although lead-based paint abatement efforts are not mandatory, any abatement that is conducted within housing built before January 1, 1978 , or a child-occupied facility is required to comply with all lead-based paint work practice standards, licensing and notification requirements. For more information about lead-based paint removal visit: http://www.in.gov/isdh/19131.htm (http://www.in.gov/isdh/19131.htm).

5. Ensure that asphalt paving plants are permitted and operate properly. The use of cutback asphalt, or asphalt emulsion containing more than seven percent (7%) oil distillate, is prohibited during the months April through October. See 326 IAC 8-5-2 , Asphalt Paving Rule (http://www.ai.org/legislative/iac/T03260/A00080.PDF (http://www.ai.org/legislative/iac/T03260/A00080.PDF)).

6. If your project involves the construction of a new source of air emissions or the modification of an existing source of air emissions or air pollution control equipment, it will need to be reviewed by the IDEM Office of Air Quality (OAQ). A registration or permit may be required under 326 IAC 2 (View at: www.ai.org/legislative/iac/t03260/a00020.pdf (http://www.ai.org/legislative/iac/t03260/a00020.pdf).) New sources that use or emit hazardous air pollutants may be subject to Section 112 of the Clean Air Act and corresponding state air regulations governing hazardous air pollutants.

7. For more information on air permits visit: http://www.in.gov/idem/4223.htm (http://www.in.gov/idem/4223.htm), or to initiate the IDEM air permitting process, please contact the Office of Air Quality Permit Reviewer of the Day at (317) 233-0178 or OAMPROD atdem.state.in.us.

LAND QUALITY

In order to maintain compliance with all applicable laws regarding contamination and/or proper waste disposal, IDEM recommends that:

1. If the site is found to contain any areas used to dispose of solid or hazardous waste, you need to contact the Office of Land Quality (OLQ)at 317-308-3103.

2. All solid wastes generated by the project, or removed from the project site, need to be taken to a properly permitted solid waste processing or disposal facility. For more information, visit http://www.in.gov/idem/4998.htm (http://www.in.gov/idem/4998.htm).

3. If any contaminated soils are discovered during this project, they may be subject to disposal as hazardous waste. Please contact the OLQ at 317-308-3103 to obtain information on proper disposal procedures.

4. If PCBs are found at this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding management of any PCB wastes from this site.

5. If there are any asbestos disposal issues related to this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding the management of asbestos wastes (Asbestos removal is addressed above, under Air Quality).

6. If the project involves the installation or removal of an underground storage tank, or involves contamination from an underground storage tank, you must contact the IDEM Underground Storage Tank program at 317/308-3039. See: http://www.in.gov/idem/4999.htm (http://www.in.gov/idem/4999.htm).

FINAL REMARKS

Should you need to obtain any environmental permits in association with this proposed project, please be mindful that IC 13-15-8 requires that you notify all adjoining property owners and/or occupants within ten days your submittal of each permit application. However, if you are seeking multiple permits, you can still meet the notification requirement with a single notice if all required permit applications are submitted with the same ten day period.

Should the scope of the proposed project be expanded to the extent that a National Environmental Policy Act Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required, IDEM will actively participate in any early interagency coordination review of the project.

Meanwhile, please note that this letter does not constitute a permit, license, endorsement or any other form of approval on the part of the Indiana Department of Environmental Management regarding any project for which a copy of this letter is used. Also note that is it the responsibility of the project engineer or consultant using this letter to ensure that the most current draft of this document, which is located at http://www.in.gov/idem/5284.htm (http://www.in.gov/idem/5284.htm), is used.

Signature(s) of the Applicant

I acknowledge that the following proposed roadway project will be financed in part, or in whole, by public monies.

Project Description

Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

With my signature, I do hereby affirm that I have read the letter from the Indiana Department of Environment that appears directly above. In addition, I understand that in order to complete that project in which I am interested, with a minimum of impact to the environment, I must consider all the issues addressed in the aforementioned letter, and further, that I must obtain any required permits.

Date: April 9, 2020

Signature of the INDOT
Project Engineer or Other Responsible Agent

Jerry L Sitton

Jerry Sitton, Highway Superintendent

Date: 4/9/2020

Signature of the
For Hire Consultant Brittney M Layton

Brittney Layton, Environmental Scientist

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

DNR #: ER-22420 **Request Received:** April 3, 2020

Requestor: Butler, Fairman & Seufert Inc
Brittney Layton
8450 Westfield Boulevard, Suite 300
Indianapolis, IN 46240

Project: CR 1100 North bridge (County #1, NBI #7000001) replacement over Sixmile Creek, 0.1 mile west of CR 900 West; Des #1802929

County/Site info: Rush

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment: This proposal will require the formal approval of our agency for construction in a floodway pursuant to the Flood Control Act (IC 14-28-1), unless it qualifies for a bridge exemption (see enclosure). Please include a copy of this letter with the permit application if the project does not meet the bridge exemption criteria.

Natural Heritage Database: The Natural Heritage Program's data have been checked.
To date, no plant or animal species listed as state or federally threatened, endangered, or rare have been reported to occur in the project vicinity.

Fish & Wildlife Comments: Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

1) Crossing Structure:
For purposes of maintaining fish and wildlife passage through a crossing structure, the Environmental Unit recommends bridges rather than culverts and bottomless culverts rather than box or pipe culverts. Wide culverts are better than narrow culverts, and culverts with shorter through lengths are better than culverts with longer through lengths. If box or pipe culverts are used, the bottoms should be buried a minimum of 6" (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2') below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the OHWM width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width / length) of 0.25; and have stream depth, channel width, and water velocities during low-flow conditions that are approximate to those in the natural stream channel. Banklines should be restored within box and pipe structures to allow for wildlife passage above the ordinary highwater mark.

The new, replacement, or rehabbed structure, and any bank stabilization under the structure, should not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions. When determining an appropriate bridge or culvert size, consider whether or not wildlife/vehicle collisions are a concern at the crossing site. If feasible, a larger bridge or culvert opening can allow for the movement of wildlife under the roadway in order to minimize wildlife/vehicle collisions.

Attachments: A - Bridge Exemption Criteria

2) Bank Stabilization:
Establishing vegetation along the banks is critical for stabilization and erosion control. In addition to vegetation, some other form of bank stabilization may be needed. While hard armoring alone (e.g. riprap or glacial stone) may be needed in certain instances, soft armoring and bioengineering techniques should be considered first. In many instances, one or more methods are necessary to increase the likelihood of vegetation establishment. Combining vegetation with most bank stabilization methods can provide additional bank protection and help reduce impacts upon fish and wildlife. Information about bioengineering techniques can be found at http://www.in.gov/legislative/iac/20120404-IR-312120154NRA.xml.pdf. Also, the following is a USDA/NRCS document that outlines many different bioengineering techniques for streambank stabilization: http://directives.sc.egov.usda.gov/17553.wba.

Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the ordinary high water mark (OHWM). The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to Eastern Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion.

3) Riparian Habitat:
We recommend a mitigation plan be developed (and submitted with the permit application, if required) for any unavoidable habitat impacts that will occur. The DNR's Floodway Habitat Mitigation guidelines (and plant lists) can be found online at: http://www.in.gov/legislative/iac/20190130-IR-312190041NRA.xml.pdf.

Impacts to non-wetland forest of one (1) acre or more should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10" dbh or greater (5:1 mitigation based on the number of large trees).

4) Nesting Birds/Roosting Bats:
The proposed bridge replacement activities could affect any nesting birds or roosting bats. Cliff and Barn Swallows, among other species, often nest on the underside of road bridges and many bat species roost in expansion joints and other concrete crevices on road bridges. Survey the bridges for any bird nests prior to construction. Nest surveys should occur between May 7 and September 7, which denotes the main nesting season for most bird species. If nests are found with eggs, chicks, or parents actively attending to the nest (building the nest and visiting often), then repairs should be put on hold until the nests complete their nesting cycle (to fledging) or fail (by natural causes).

The Division of Fish and Wildlife (DFW) recommends bridge maintenance activities be restricted to the period between November 1 and March 1 to avoid the summer roosting period for most bats in the central part of the State. However, some endangered bats could use a bridge to roost between November and March. No matter when work is proposed, the bridge must be inspected for the presence of bats. If there is no evidence of active bat use, work can proceed. If there is evidence of active bat use, work must not occur until either the bats leave the structure for the season or a separate permit is issued to remove the bats. Please contact Linnea Petercheff (lpetercheff@dnr.in.gov) regarding permits to handle bats. If bats are present, a more formal survey to determine what species are present may be required.

Attachments: A - Bridge Exemption Criteria

The DFW recommends consulting with the State Mammologist or the US Fish and Wildlife Service before scheduling a bridge maintenance, repair, or replacement project where evidence of bat use of the structure has been observed. Information about bat use of transportation structures as well as avoidance and exclusion measures can be found at https://www.batcon.org/pdfs/bridges/BatsBridges2.pdf and https://www.whitenosesyndrome.org/mmedia-education/acceptable-management-practices-for-bat-species-inhabiting-transportation-infrastructure.

5) Stream/Wetland Habitat:
For any stream and/or wetland impacts, you may need to contact the Indiana Department of Environmental Management (IDEM) 401 program and the US Army Corps of Engineers (USACE) 404 program. Impacts to wetland habitat should be mitigated at the appropriate ratio according to the 1991 INDOT/IDNR/USFWS Memorandum of Understanding.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:
1. Revegetate all bare and disturbed areas that will not be mowed and maintained with a mixture of grasses, sedges, wildflowers, shrubs and hardwood tree species native to Central Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion; turf-type grasses (including low-endophyte, friendly endophyte, and endophyte free tall fescue but excluding all other varieties of tall fescue) may be used in regularly mowed areas only.
2. Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 5 inches dbh, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30.
5. Do not construct any temporary runarounds, access bridges, causeways, cofferdams, diversions, or pumparounds.
6. Operate equipment used to replace the bridge from the existing roadway.
7. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
8. Do not use broken concrete as riprap.
9. Underlay the riprap with a bedding layer of well graded aggregate or a geotextile to prevent piping of soil underneath the riprap.
10. Minimize the movement of resuspended bottom sediment from the immediate project area.
11. Do not deposit or allow demolition/construction materials or debris to fall or otherwise enter the waterway.
12. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
13. Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets that are heavy-duty, biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.
14. Do not excavate or place fill in any riparian wetland.

Attachments: A - Bridge Exemption Criteria

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife

Early Coordination/Environmental Assessment

Contact Staff: Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife

Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.

Christie L. Stanifer **Date:** May 1, 2020

Christie L. Stanifer
Environ. Coordinator
Division of Fish and Wildlife

Attachments: A - Bridge Exemption Criteria

INDIANA
GEOLOGICAL SURVEY

Organization and Project Information

Project ID:	6390
Des. ID:	1802929
Project Title:	Rush County Bridge No. 1 carrying County Road (CR) 1100 N over Six Mile Creek
Name of Organization:	Butler, Fairman, & Seufert
Requested by:	Brittney Layton

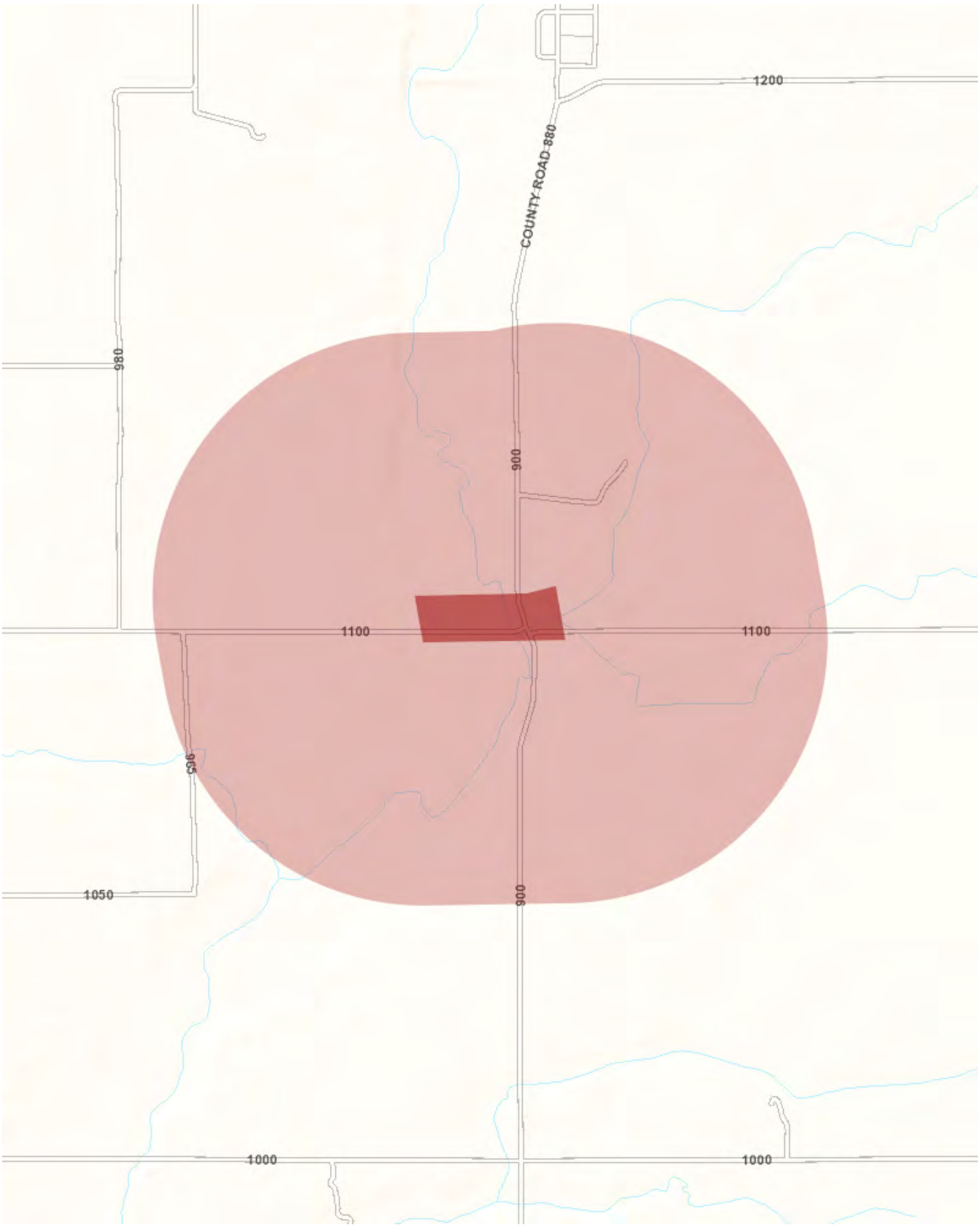
Environmental Assessment Report

1. Geological Hazards:
   - Moderate liquefaction potential
   - Floodway
2. Mineral Resources:
   - Bedrock Resource: High Potential
   - Sand and Gravel Resource: High Potential
3. Active or abandoned mineral resources extraction sites:
   - Petroleum Exploration Wells

*All map layers from Indiana Map (maps.indiana.edu)

This information was furnished by Indiana Geological Survey
Address: 420 N. Walnut St., Bloomington, IN 47404
Email: IGSEnvir@indiana.edu
Phone: 812 855-7428

Date: April 03, 2020



Metadata:

- https://maps.indiana.edu/metadata/Geology/Petroleum_Wells.html
- https://maps.indiana.edu/metadata/Geology/Seismic_Earthquake_Liquefaction_Potential.html
- https://maps.indiana.edu/metadata/Geology/Industrial_Minerals_Sand_Gravel_Resources.html
- https://maps.indiana.edu/metadata/Hydrology/Floodplains_FIRM.html
- https://maps.indiana.edu/metadata/Geology/Bedrock_Geology.html

USDA
United States Department of Agriculture

Natural Resources Conservation Service
Indiana State Office
6013 Lakeside Boulevard
Indianapolis, IN 46278
317-290-3200

April 8, 2020

Brittney Layton
Butler, Fairman & Seufert
8450 Westfield Boulevard, Suite 300
Indianapolis, Indiana 46240

Dear Ms. Layton:

The proposed project to make bridge improvements to bridge number 1 carrying County Road 1100 North over Six Mile Creek in Rush County, Indiana, (Des No 1802929) as referred to in your letter received April 3, 2020, will cause a conversion of prime farmland.

The attached packet of information is for your use competing Parts VI and VII of the AD-1006. After completion, the federal funding agency needs to forward one copy to NRCS for our records.

If you need additional information, please contact John Allen at 317-295-5859.

Sincerely,

RICK NEILSON
State Soil Scientist

Enclosures

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request July 6, 2020	
Name of Project DES1802929_Bridge Project (Rush #1)		Federal Agency Involved FHWA	
Proposed Land Use Bridge Replacement		County and State Rush County, Indiana	
PART II *(To be completed by NRCS)*		Date Request Received By NRCS 4/3/2020	Person Completing Form: JRA
Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑ NO ☐	Acres Irrigated	Average Farm Size 379 ac
Major Crop(s) Corn	Farmable Land In Govt. Jurisdiction Acres: 255429 % 98	Amount of Farmland As Defined in FPPA Acres: 241962 % 93	
Name of Land Evaluation System Used LESA	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 4/8/2020	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	0			
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	3.49			
B. Total Acres Statewide Important or Local Important Farmland	0.00			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.001			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	94			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	66			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	14			
2. Perimeter In Non-urban Use	(10)	9			
3. Percent Of Site Being Farmed	(20)	2			
4. Protection Provided By State and Local Government	(20)	0			
5. Distance From Urban Built-up Area	(15)	15			
6. Distance To Urban Support Services	(15)	0			
7. Size Of Present Farm Unit Compared To Average	(10)	2			
8. Creation Of Non-farmable Farmland	(10)	0			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	15			
11. Effects Of Conversion On Farm Support Services	(10)	0			
12. Compatibility With Existing Agricultural Use	(10)	0			
TOTAL SITE ASSESSMENT POINTS	160	62	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	66	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	62	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	128	0	0	0

Site Selected: Site A	Date Of Selection 7-14-2020	Was A Local Site Assessment Used? YES ☐ NO ☑

Reason For Selection:

This alternative uses the existing alignment, thereby minimizing impacts to farmland.

Name of Federal agency representative completing this form: Brittney Layton (BF&S) on behalf of FHWA	Date: 11-24-2020

(See Instructions on reverse side) **Form AD-1006 (03-02)**

NOTE: Coordination received from Rush County Commissioner.

From:	Paul Wilkinson
To:	Brittney Layton
Subject:	RE: Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN
Date:	Friday, April 3, 2020 2:56:14 PM

Thanks for passing this along.

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Brittney Layton <BLayton@bfsengr.com>
Date: 4/3/20 2:31 PM (GMT-05:00)
To:
Subject: Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

Good afternoon,

Butler, Fairman, & Seufert, Inc. is conducting Early Coordination as part of the requirements for the environmental process for the proposed Bridge Project on the above named project located in Rush County, Indiana.

We respectfully request your review of the attached Early Coordination Packet within 30 days. Feel free to reach out with any questions or concerns.

Thank you,
Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616
BLayton@bfsengr.com | www.BFSEngr.com

Note: Coordination received from Rush County Highway Superintendent.

Brittney Layton

From: Brittney Layton
Sent: Monday, April 6, 2020 8:38 AM
To: Jerry Sitton
Subject: Re: Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN
Attachments: image001.jpg

Thank you

Get Outlook for iOS

From: Jerry Sitton <highway@rushcounty.in.gov>
Sent: Monday, April 6, 2020 6:37:31 AM
To: Brittney Layton <BLayton@bfsengr.com>
Subject: RE: Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

Brittney:
I highlighted some other inconsistencies, 75 feet north in cover letter, 85 feet north in project description. Also 900W over 6 Mile Creek should be 1100N.

Jerry

From: Brittney Layton <BLayton@bfsengr.com>
Sent: Friday, April 3, 2020 2:32 PM
Subject: Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

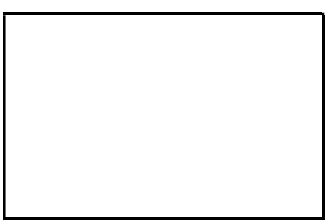
Good afternoon,

Butler, Fairman, & Seufert, Inc. is conducting Early Coordination as part of the requirements for the environmental process for the proposed Bridge Project on the above named project located in Rush County, Indiana.

We respectfully request your review of the attached Early Coordination Packet within 30 days. Feel free to reach out with any questions or concerns.

Thank you,
Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616
BLayton@bfsengr.com | www.BFSEngr.com



****

Brittney Layton

From: McWilliams, Robin <robin_mcwilliams@fws.gov>
Sent: Monday, April 6, 2020 11:39 AM
To: Brittney Layton
Subject: Re: [EXTERNAL] Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

Dear Brittney,

This responds to your recent letter requesting our comments on the aforementioned project.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

The project is within the range of the Indiana bat (Myotis sodalis) and northern long-eared bat (Myotis septentrionalis) and should follow the new Indiana bat/northern long-eared bat programmatic consultation process, if applicable (i.e. a federal transportation nexus is established). The Service has 14 days after the "Not Likely to Adversely Affect" determination letter is generated. We will review that information once it is received; if you do not receive a response within 14 days, we have no additional comments. **If** tree clearing will occur beyond 100 feet from the existing edge of pavement (and not exceed 300 feet), the project may fall within the "formal" portion of the Indiana bat/northern long-eared bat rangewide programmatic consultation and will require compensatory mitigation. If tree clearing occurs beyond 300 feet, then additional coordination will be required.

Based on a review of the information you provided, the U.S. Fish and Wildlife Service has no objection to the project as currently proposed. However, should new information arise pertaining to project plans or a revised species list be published, it will be necessary for the Federal agency to reinitiate consultation. Standard recommendations are provided below.

We appreciate the opportunity to comment at this early stage of project planning. If you have any questions about our recommendations, please call (812) 334-4261 x. 207.

Sincerely,
Robin McWilliams Munson

Standard Recommendations:

1. Do not clear trees or understory vegetation outside the construction zone boundaries. (**This restriction is not related to the "tree clearing" restriction for potential Indiana Bat habitat.)**
2. Restrict below low-water work in streams to placement of culverts, piers, pilings and/or footings, shaping of the spill slopes around the bridge abutments, and placement of riprap.

Culverts should span the active stream channel, should be either embedded or a 3-sided or open-arch culvert, and be installed where practicable on an essentially flat slope. When an open-bottom culvert or arch is used in a stream, which has a good natural bottom substrate, such as gravel, cobbles and boulders, the existing substrate should be left undisturbed beneath the culvert to provide natural habitat for the aquatic community.

3. Restrict channel work and vegetation clearing to the minimum necessary for installation of the stream crossing structure.
4. Minimize the extent of hard armor (riprap) in bank stabilization by using bioengineering techniques whenever possible. If riprap is utilized for bank stabilization, extend it below low-water elevation to provide aquatic habitat.
5. Implement temporary erosion and sediment control methods within areas of disturbed soil. All disturbed soil areas upon project completion will be vegetated following INDOT's standard specifications.
6. Avoid all work within the inundated part of the stream channel (in perennial streams and larger intermittent streams) during the fish spawning season (April 1 through June 30), except for work within sealed structures such as caissons or cofferdams that were installed prior to the spawning season. No equipment shall be operated below Ordinary High Water Mark during this time unless the machinery is within the caissons or on the cofferdams.
7. Evaluate wildlife crossings under bridge/culverts projects in appropriate situations. Suitable crossings include flat areas below bridge abutments with suitable ground cover, high water shelves in culverts, amphibian tunnels and diversion fencing

Robin McWilliams Munson
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
620 South Walker Street
Bloomington, IN 46142
812-334-4261

Mon-Tues 8-3:30p
Wed-Thurs 8:30-3p Telework

From: Brittney Layton <BLayton@bfsengr.com>
Sent: Friday, April 3, 2020 2:31 PM
Subject: [EXTERNAL] Early Coordination Des. No. 1802929, Rush Co. Bridge 1 carrying CR 1100 N over Six Mile Creek, Rush County, IN

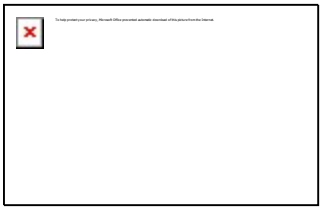
Good afternoon,

Butler, Fairman, & Seufert, Inc. is conducting Early Coordination as part of the requirements for the environmental process for the proposed Bridge Project on the above named project located in Rush County, Indiana.

We respectfully request your review of the attached Early Coordination Packet within 30 days. Feel free to reach out with any questions or concerns.

Thank you,
Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616
BLayton@bfsengr.com | www.BFSEngr.com



Butler Fairman Seufert
CIVIL ENGINEERS

Headquarters:
8450 Westfield Blvd., Suite 300
Indianapolis, IN 46240-5920
T 317.713.4615
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E bfs@BFSEngr.com
www.BFSEngr.com

Branch Locations:
Ft. Wayne
Lafayette
Merrillville
Plainfield
South Bend
Louisville

ACEC INDIANA

August 27, 2019

This letter is being sent to the following utility contacts:

1. Matt Spindler – AT&T
2. Warren Shuppert – Rush Shelby Energy

Subject: Initial Notice of Proposed Improvement Project Des. No. 1802929

Our firm has been assigned the task of utility coordination for the project referenced above by the Indiana Department of Transportation. In accordance with 105 IAC 13-3-1(c), this letter serves as your initial notice of the proposed improvement project Des. No. 1802929 on CR W 1100 N in Rush County, Indiana.

In accordance with 105 IAC 13-3-1(c), the following information is provided. The dates listed in items (4) and (5) below are the currently scheduled dates.

(1) Name or route number:	CR W 1100 N
(2) Geographical limits:	Intersection with CR N 900 W
(3) General description of work:	Bridge replacement and re-alignment
(4) Date approved work plan will be needed:	08/29/2023
(5) Letting Date:	9/13/2023
(6) Name of designer and contact information:	Mike Matel, P.E., BF&S E:MMatel@bfsengr.com P:317-713-4615
(7) Major or minor project:	Minor

In accordance with 105 IAC 13-3-1(d), within 30 days after receiving the initial notice, the utility shall respond in writing with a:

(1) description of the type and location of its facilities within the geographical limits of the proposed improvement project (facility maps are helpful); or
(2) statement that the utility has no facilities within the geographical limits of the improvement project.
(3) documentation of any reimbursable property interest your utility has within the geographical limits of the improvement project

Additionally, please provide us the name, telephone number, postal address and email address of the person selected as your designated contact for this project to expedite future communications. We will contact Indiana 811 and request locates for this project prior to our survey. If you would prefer to provide us location information by some other means please contact this office to discuss.

If at any time throughout the duration of Utility Coordination to the end of Construction on this project your utility modifies, upgrades, relocates, abandons, or installs new or existing facilities please notify the Utility Coordinator at the contact information below.

Please send your response to Utility Coordination., Butler, Fairman & Seufert, Inc., 8450 Westfield Blvd. Suite 300, Indianapolis, Indiana, 46240, P: (317) 713-4615, F: (317) 713-4616, UC@BFSEngr.com. Thank you for your attention to these matters.

Sincerely;

Kent Seidel
Utility Coordinator

Enclosure: Location Map
KMZ Map File

Cc: Mike Matel, P.E., BF&S
UC@BFSEngr.com

From:	Hinkle, Meghan
To:	Brittney Layton
Cc:	Bales, Ronald
Subject:	RE: IPaC: Des. No.: 1802929, Bridge Replacement Project for CR 1100 N over Six Mile Creek, Rush County, IN
Date:	Tuesday, March 24, 2020 11:26:14 AM
Attachments:	image001.png

Good Morning,

This project has been sent to USFWS for their 30-day review. Once I receive a response from USFWS I will send it to you.

Due to this project coordinating several years prior to construction, please also add the following firm commitments to the environmental document:

USFWS Bridge/Structure Assessment shall take place no earlier than two (2) years prior to the start of construction. If construction will begin after (date of inspection, plus 2 years), an inspection of the structure by a qualified individual, must be performed. Inspection of the structure should check for presence of bats/bat indicators and/or presence of birds. The results of the inspection must indicate no signs of bats or birds. If signs of bats or birds are documented during this inspection, the INDOT District Environmental Manager must be contacted immediately.

A review of the USFWS coordination must occur prior to RFC date to ensure the species determination is still valid, and no additional species have been listed that will require coordination.

Let me know if you have any questions.

Thanks,

Meghan Hinkle
Major Projects / LPA Review Liaison
Environmental Services Division
Indiana Department of Transportation
100 N Senate Ave N642-ES
Indianapolis, IN 46204-2216
317-232-1490
Email: MHinkle@indot.IN.gov

From: Brittney Layton <BLayton@bfsengr.com>
Sent: Tuesday, March 24, 2020 8:39 AM
To: Hinkle, Meghan <MHinkle@indot.IN.gov>
Subject: RE: IPaC: Des. No.: 1802929, Bridge Replacement Project for CR 1100 N over Six Mile Creek, Rush County, IN

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To: December 09, 2020
Consultation Code: 03E12000-2020-SLI-0968
Event Code: 03E12000-2021-E-01474
Project Name: Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The attached species list identifies any federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-federal representative) must consult with the Service if they determine their project “may affect” listed species or critical habitat.

Under 50 CFR 402.12(e) (the regulations that implement Section 7 of the Endangered Species Act) the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally. You may verify the list by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation and completing the same process you used to receive the attached list. As an alternative, you may contact this Ecological Services Field Office for updates.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - http://www.fws.gov/midwest/endangered/section7/s7process/index.html. This website contains step-by-step instructions which will help you

determine if your project will have an adverse effect on listed species and will help lead you through the Section 7 process.

For all **wind energy projects** and **projects that include installing towers that use guy wires or are over 200 feet in height**, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within your proposed project or may be affected by your proposed project.

Although no longer protected under the Endangered Species Act, be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*) and Migratory Bird Treaty Act *(*16 U.S.C. 703 *et seq*), as are golden eagles. Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at http://www.fws.gov/midwest/midwestbird/EaglePermits/index.html to help you determine if you can avoid impacting eagles or if a permit may be necessary.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
(812) 334-4261

Project Summary

Consultation Code: 03E12000-2020-SLI-0968

Event Code: 03E12000-2021-E-01474

Project Name: Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Rush County Board of Commissioners intends to proceed with a Bridge Replacement project of the bridge Structure 70-00001, which conveys CR 1100 N over Six Mile Creek, Des. No. 1802929. The project is located on County Road 1100 North approximately 0.1 mile west of CR 900 W, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle. The proposed work involves removing the existing bridge and replacing it. Approximately 0.65 acre of permanent right of way is anticipated. The preferred maintenance of traffic would be a road closure with a detour. For motorists travelling east to west, the detour route would involve utilizing CR 980 W, US 40, CR 900 W, CR 1200 N, CR 800 W, and CR 1100 N. For motorists travelling north to south, the detour route would involve utilizing CR 800 W, 1200 N, and CR 900 W. A temporary runaround will not be used.

Utilities run parallel to the south side of the road throughout the project area. No permanent lighting will be installed or modified from the existing. No temporary lighting will be required for this project. Suitable summer habitat is located in the project vicinity. Approximately 0.5 acre of trees and shrubs will be removed for the bridge replacement to be constructed. The types of trees being removed include eastern cottonwood (Populus deltoides; WIS: FAC), black walnut (Juglans nigra; WIS: FACU), and common hackberry (Celtis occidentalis; WIS: FACU). During Butler, Fairman & Seufert's field investigation of Bridge #70-00001 on August 29, 2019, no presence of bats was identified. The letting date for this project is scheduled to be October 12, 2023 with construction anticipated to occur spring of 2024. A review of the USFWS database on February 6, 2020 did not indicate the presence of endangered bat species in or within 0.5 mile of the project area.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.771106186092055N85.6143218936285W

Counties: Rush, IN

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/1/office/31440.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Incidental take of the NLEB is not prohibited here. Federal agencies may consult using the 4(d) rule streamlined process. Transportation projects may consult using the programmatic process. See www.fws.gov/midwest/endangered/mammals/nleb/index.html Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Indiana Ecological Services Field Office
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To: December 10, 2020
Consultation Code: 03E12000-2020-I-0968
Event Code: 03E12000-2021-E-01500
Project Name: Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Subject: Concurrence verification letter for the 'Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request to verify that the **Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*).

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances,

Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Description

Des No. 1802929, Bridge Replacement, County Road (CR) 1100 N over Six Mile Creek, Rush County, IN.

Rush County Board of Commissioners intends to proceed with a Bridge Replacement project of the bridge Structure 70-00001, which conveys CR 1100 N over Six Mile Creek, Des. No. 1802929. The project is located on County Road 1100 North approximately 0.1 mile west of CR 900 W, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle. The proposed work involves removing the existing bridge and replacing it. Approximately 0.65 acre of permanent right of way is anticipated. The preferred maintenance of traffic would be a road closure with a detour. For motorists travelling east to west, the detour route would involve utilizing CR 980 W, US 40, CR 900 W, CR 1200 N, CR 800 W, and CR 1100 N. For motorists travelling north to south, the detour route would involve utilizing CR 800 W, 1200 N, and CR 900 W. A temporary runaround will not be used.

Utilities run parallel to the south side of the road throughout the project area. No permanent lighting will be installed or modified from the existing. No temporary lighting will be required for this project. Suitable summer habitat is located in the project vicinity. Approximately 0.5 acre of trees and shrubs will be removed for the bridge replacement to be constructed. The types of trees being removed include eastern cottonwood (Populus deltoides; WIS: FAC), black walnut (Juglans nigra; WIS: FACU), and common hackberry (Celtis occidentalis; WIS: FACU). During Butler, Fairman & Seufert's field investigation of Bridge #70-00001 on August 29, 2019, no presence of bats was identified. The letting date for this project is scheduled to be October 12, 2023 with construction anticipated to occur spring of 2024. A review of the USFWS database on February 6, 2020 did not indicate the presence of endangered bat species in or within 0.5 mile of the project area.

Determination Key Result

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   Yes

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?
   A) Federal Highway Administration (FHWA)

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/ rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located **within** a karst area?

   No

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   Yes

9. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    No

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

    [4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

    No

12. Does the project include activities **within documented Indiana bat habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

13. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors?

    Yes

14. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented Indiana bat** roosting/foraging habitat or travel corridors occur[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    B) During the inactive season

15. Does the project include activities **within documented NLEB habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    No

16. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

    Yes

17. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

    B) During the inactive season

18. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    Yes

19. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    No

20. Are *all* trees that are being removed clearly demarcated?

    Yes

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    No

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

23. Does the project include slash pile burning?

    No

24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    Yes

25. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    Yes

26. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    Yes

    SUBMITTED DOCUMENTS

    - *Rush Co Bridge 1_Culvert Field Assessment Form.pdf https://ecos.fws.gov/ipac/project/AUKKCPX2VVEKFJAN6HVZAOF7EY/projectDocuments/20591290*

27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)[1]?

    [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

    Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

    No

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

    No

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    No

30. Will the project involve the use of **temporary** lighting *during* the active season?

    No

31. Will the project install new or replace existing **permanent** lighting?

    No

32. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    No

33. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

34. Will the project raise the road profile **above the tree canopy**?

    No

35. Are the project activities that are not associated with habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives consistent with a No Effect determination in this key?

    Automatically answered
    Yes, other project activities are limited to actions that DO NOT cause any additional stressors to the bat species as described in the BA/BO

36. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered
    Yes, because the tree removal/trimming that occurs outside of the Indiana bat's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

37. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    Automatically answered
    Yes, because the tree removal/trimming that occurs outside of the NLEB's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

38. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered
    Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected

39. **General AMM 1**
Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

40. **Tree Removal AMM 1**
Can *all* phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word "trees" as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS' current summer survey guidance for our latest definitions of suitable habitat.

Yes

41. **Tree Removal AMM 3**
Can tree removal be limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits)?

Yes

42. **Tree Removal AMM 4**
Can the project avoid cutting down/removal of *all* (1) **documented**[1] Indiana bat or NLEB roosts[2] (that are still suitable for roosting), (2) trees **within** 0.25 miles of roosts, and (3) documented foraging habitat any time of year?

[1] The word documented means habitat where bats have actually been captured and/or tracked.

[2] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

Yes

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   N/A

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   N/A

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.5

4. Please describe the proposed bridge work:

   a bridge removal and replacement over Six Mile Creek

5. Please state the timing of all proposed bridge work:

   spring and summer of 2024

6. Please enter the date of the bridge assessment:

   8.29.2019

Avoidance And Minimization Measures (AMMs)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

TREE REMOVAL AMM 1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal.

TREE REMOVAL AMM 2

Apply time of year restrictions for tree removal when bats are not likely to be present, or limit tree removal to 10 or fewer trees per project at any time of year within 100 feet of existing road/ rail surface and **outside of documented** roosting/foraging habitat or travel corridors; visual emergence survey must be conducted with no bats observed.

TREE REMOVAL AMM 3

Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

TREE REMOVAL AMM 4

Do not remove **documented** Indiana bat or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or
documented foraging habitat any time of year.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on December 02, 2019. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

Bridge/Structure Assessment Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside, from activities above that bore down to the underside, or that could impact expansion joints, from deck removal on bridges, or from structure demolish. Each bridge/structure to be worked on must have a current bridge inspection. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the US Fish and Wildlife Service, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing structures prior to allowing any work to proceed.

DOT Project #	**Water Body**	**Date/Time of Inspection**
1802929	Six Mile Creek	8/29/2019 / 11:20 am

Route:	**County:**	**Federal Structure ID:**	**Bat Indicators** Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.				
CR 1100 N	Rush	14100067	Visual	Sound	Droppings	Staining	**Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)**

Areas Inspected (Check all that apply)

Bridges		**Culverts/Other Structures**		**Summary Info (circle all that apply)**			
All vertical crevices sealed at the top and 0.5-1.25” wide & ≥4” deep		**Crevices, rough surfaces or imperfections in concrete**		**Human disturbance or traffic under bridge/in culvert or at the structure**	High	Low	None

All crevices >12" deep & not sealed	x	**Spaces between walls, ceiling joists**	x	**Possible corridors for netting**	None/poor	Marginal	Excellent
All guardrails	x			**Evidence of bats using bird nests, if present?**	Yes	No	
All expansion joints							
Spaces between concrete end walls and the bridge deck	x						
Vertical surfaces on concrete I-beams							

Assessment Conducted By: Ryan Scott (BF&S) **Signature(s):** Ryan L Scott

District Environmental Use Only: Date Received by District Environmental Manager: _____

DOT Bat Assessment Form Instructions

1. Assessments must be completed a minimum of 1 year prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. **Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that structure in subsequent years.**
2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has obtained clearance from the USFWS, if required. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
3. Estimates of numbers of bats observed should be place in the Notes column.
4. Any questions should be directed to the District Environmental Manager.

From:	Curry, Jennifer
To:	Brittney Layton
Subject:	RE: USFWS Database Check for Des. No. 1802929, Bridge #1 on County Road 1100 North over Six Mile Creek, Rush County, IN
Date:	Thursday, February 6, 2020 2:35:11 PM

Brittney,

A review of the USFWS GIS database for Indiana bat and Northern long-eared bat roosting, hibernacula and capture sites was conducted for Des 1802929 on February 6, 2020. There are no documented sites within a half mile the project area. The USFWS Information for Planning and Conservation (IPaC) website must be consulted and a new project created to obtain an official species list and complete the questionnaire for the project to determine the applicability of the programmatic consultation. If needed, the IPaC generated documents must be forwarded to the USFWS for verification.

Thanks,

Jenni Curry
Environmental Manager II
Indiana Department of Transportation
32 South Broadway
Greenfield, IN 46140
317-467-3929

From: Brittney Layton [mailto:BLayton@bfsengr.com]
Sent: Wednesday, February 05, 2020 1:50 PM
To: Curry, Jennifer <JCurry1@indot.IN.gov>
Subject: RE: USFWS Database Check for Des. No. 1802929, Bridge #1 on County Road 1100 North over Six Mile Creek, Rush County, IN

Good afternoon Jenni,
Please find attached a zipfile containing the shapefiles for the project area.

Thank you,

Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616
BLayton@bfsengr.com | www.BFSEngr.com

Brittney Layton

From: Michael Matel
Sent: Monday, December 21, 2020 6:34 AM
To: Brittney Layton
Cc: sbowman@indot.in.gov
Subject: RE: Rush County Bridge No. 1, Des No 1802929

Brittney and Sandra, 12-21-20
Rush County Bridge No. 1 is composed of steel.
The new bridge will have concrete box beams.
Mike

Michael Matel, P.E.
Bridge Project Manager

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302
p 317-713-4615 | f 317-713-4616 | c 317-285-9784
MMatel@bfsengr.com | www.BFSEngr.com

From: Brittney Layton <BLayton@bfsengr.com>
Sent: Friday, December 18, 2020 12:03 PM
To: Michael Matel <MMatel@bfsengr.com>
Cc: sbowman@indot.in.gov
Subject: FW: Rush County Bridge No. 1, Des No 1802929

Good afternoon Mike,
Can you please answer Sandy's question below? Does the Rush County Bridge No. 1 utilize steel beams?

Thank you,
Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616 | c 434-390-8813
BLayton@bfsengr.com | www.BFSEngr.com

From: Bowman, Sandra A <SBowman@indot.IN.gov>
Sent: Friday, December 18, 2020 11:37 AM
To: Brittney Layton <BLayton@bfsengr.com>
Subject: RE: Rush County Bridge No. 1, Des No 1802929

Brittany,

This is a little higher. Does it have steal beams? The swallows are more attracted to these in our area, but I still think it may be too low for them. I think a requirement to inspect for nests and remove any before egg laying should be sufficient.

Sandy

Sandra Bowman
Mgr, Ecology and Waterway Permitting

sbowman@indot.in.gov
Off Cell – 317-416-2509

From: Brittney Layton <BLayton@bfsengr.com>
Sent: Friday, December 18, 2020 10:29 AM
To: Bowman, Sandra A <SBowman@indot.IN.gov>
Subject: RE: Rush County Bridge No. 1, Des No 1802929

Good morning Sandy,
Similar issue here. Following up. Can we say the same as Rush County 155, then? Or do you believe it is high enough for Eastern Phoebe?

Brittney Layton, M.A.
Environmental Scientist

Butler, Fairman & Seufert, Inc.
8450 Westfield Blvd., Suite 300 | Indianapolis, IN 46240-8302 |
p 317-713-4615 | f 317-713-4616 | c 434-390-8813
BLayton@bfsengr.com | www.BFSEngr.com

Appendix D

Section 106 of the National Historic Preservation Act (NHPA)

Date: 12/22/2020

Project Designation Number: 1802929

Route Number: CR 1100N

Project Description: The Rush County Board of Commissioners, with funding from the Federal Highway Administration, proposes the replacement of Rush Co. Bridge 1 carrying County Road (CR) 1100 North over Six Mile Creek. The project is located on County Road 1100 North approximately 0.1 mile west of CR 900 W, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle. The existing Rush County Bridge No. 1 (NBI: 7000001) over Six Mile Creek is a two-lane, 3-span steel, multi-beam bridge constructed in 1992 and has a maximum span length of 59 ft., full length of 94.8 ft, and out-to-out width of 22.5 ft.

The need for the project is evidenced from the deteriorating condition of Rush Co. Bridge 1, where on the most recent INDOT Bridge Inspection, dated May 14, 2019, both the superstructure and substructure were rated at a 5 (out of 9) indicating fair condition, for rusting, pitting, and flaking paint; while the wearing surface was given a rating of 4, indicating poor condition, due to rutting and seepage. These ratings contributed to the structure's overall sufficiency rating of 47.2 (out of 100). The purpose of this project is to have a structure with deck and superstructure condition ratings of 7 (good condition), or better, respectively, at the crossing of CR 1100 North over Six Mile Creek.

The current proposed project would replace the existing bridge over Six Mile Creek as well as realign the bridge to the north to improve the safety of the intersection with CR 900 West. The proposed replacement would consist of a three-span continuous composite prestressed concrete box beam bridge with an overall length of 128 feet and a clear roadway width of 24 feet. The bridge would consist of one 9-foot-wide travel lane with a 3-foot-wide shoulder in each direction. The project requires the acquisition of approximately 0.65 acre of permanent right-of-way and 0.06 acre of temporary right-of-way. The new bridge would curve slightly north of the existing bridge, such that the center point of the new bridge will be approximately 10 to 14 feet north of the center point of the existing bridge. Proposed right-of-way widths along CR 1100 North would extend about 35 feet north of the centerline of the new CR 1100 North alignment. The approximate existing right-of-way is 8.5 ft. each side of centerline throughout the project area on the existing bridge. The project limits would be approximately 492 ft. (0.093 mile) in length along CR 1000 North. The preferred maintenance of traffic would be a road closure with a detour. For motorists travelling east to west, the detour route would involve utilizing CR 980 W, US 40, CR 900 W, CR 1200 N, CR 800 W, and CR 1100 N. For motorists travelling north to south, the detour route would involve utilizing CR 800 W, 1200 N, and CR 900 W. A temporary runaround will not be used

Feature crossed (if applicable): Six Mile Creek

City/Township: Ripley Township **County:** Rush

Information reviewed (please check all that apply):

- ☑ General project location map
- ☑ USGS map
- ☑ Aerial photograph
- ☑ Interim Report
- ☑ Written description of project area
- ☑ General project area photos
- ☑ Soil survey data
- ☐ Previously completed historic property reports
- ☑ Previously completed archaeology reports
- ☑ Bridge Inspection Information
- ☑ SHAARD
- ☑ SHAARD GIS
- ☑ Streetview Imagery

Other (please specify): Bridge Inspection Application System (BIAS); Rush County real estate records (accessed via https://beacon.schneidercorp.com/?site=RushCountyIN); MPPA application (including maps and photographs) sent by Butler, Fairman and Seufert, Inc. staff dated December 7th, 2020 and on file at INDOT CRO.

Bennett, Stacy N. and Jeffery A, Plunkett
2020 Phase Ia Archaeological Field Reconnaissance: Replacement of County Bridge No. 1 (Des. No. 1802929) in Ripley Civil Township, Rush County, Indiana. NS Services, LLC. Submitted to Butler, Fairman & Seufert, Inc.. Report on file at IDNR, DHPA.

Hixon, James and Donald R. Cochran
1986 Paleo-Indian and Early Archaic in the Upper Wabash Drainage. Reports of Investigations 19. Archaeological Resources Management Service, Ball State University, Muncie, Indiana.

Stillwell, Larry
2006 An Archaeological Field Reconnaissance of the Proposed C.R. 900 West and C.R. 900 North Road Improvements in Rush County, Indiana. Cultural Resource Management Report 06FR35. Archaeological Consultants of Ossian, Muncie, Indiana. Prepared for United Consulting Engineers, Indianapolis.

Zoll, Mitch and Donald R. Cochran
1988 Archaeological Field Reconnaissance: Rush County Bridge No. 1, Rush County Indiana. Archaeological Resources Management Service, Ball State University, Muncie, Indiana. Prepared for Butler, Fairman & Seufert, Indianapolis.

Does the project fall under the Minor Projects PA? yes ☒ no ☐

If yes, please specify categories and condition(s) (conditions that are applicable are highlighted):

B-12.Replacement, widening, or raising the elevation of the superstructure on existing bridges, and bridge replacement projects (when both the superstructure and substructure are removed), under the following conditions ***[BOTH Condition A, which pertains to Archaeological Resources, and Condition B, which pertains to Above-Ground Resources, must be satisfied]***:

Condition A (Archaeological Resources)

One of the two conditions listed below must be met *(EITHER Condition i or Condition ii must be satisfied)*:

i. Work occurs in previously disturbed soils, *OR*

ii. Work occurs in undisturbed soils and an archaeological investigation conducted by the applicant and reviewed by INDOT Cultural Resources Office determines that no National Register-listed or potentially National Register-eligible archaeological resources are present within the project area. If the archaeological investigation locates National Register-listed or potentially National Register-eligible archaeological resources, then full Section 106 review will be required. Copies of any archaeological reports prepared for the project will be provided to the DHPA and any archaeological site form information will be entered directly into the SHAARD by the applicant. The archaeological reports will also be available for viewing (by Tribes only) on INSCOPE.

Condition B (Above-Ground Resources)

The conditions listed below must be met ***(BOTH Condition i and Condition ii must be satisfied)***

i. Work does not occur adjacent to or within a National Register-listed or National Register-eligible district or individual above-ground resource; *AND*

ii. With regard to the subject bridge, at least one of the conditions listed below is satisfied *(AT LEAST one of the conditions a, b or c, must be fulfilled)*:

a. The latest Historic Bridge Inventory identified the bridge as non-historic (see http://www.in.gov/indot/2531.htm);

b. The bridge was built after 1945, and is a common type as defined in Section V. of the *Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges* issued by the Advisory Council on Historic Preservation on November 2, 2012 for so

long as that Program Comment remains in effect AND the considerations listed in Section IV of the Program Comment do not apply;

c. The bridge is part of the Interstate system and was determined not eligible for the National Register under the Section 106 Exemption Regarding Effects to the Interstate Highway System adopted by the Advisory Council on Historic Preservation on March 10, 2005, for so long as that Exemption remains in effect.

Are there any commitments associated with this project? If yes, please explain and include in the Additional Comments Section below. yes ☐ no ☒

Does the project result in a de minimis impact to a Section 4(f) protected historic resource? If yes, please explain in the Additional Comments Section below. yes ☐ no ☒

Additional Comments:

Above-ground Resources

With regard to above-ground resources, an INDOT Cultural Resources historian who meets the Secretary of the Interior's Professional Qualification Standards as per 36 CFR Part 61 performed a desktop review, checking the Indiana Register of Historic Sites and Structures (State Register) and National Register of Historic Places (National Register) lists for Rush County. No listed resources are located near the project area.

The *Rush County Interim Report* (1988; Ripley Township Scattered Sites) of the Indiana Historic Sites and Structures Inventory (IHSSI) was also consulted. The National Register & IHSSI information is available in the Indiana State Historic Architectural and Archaeological Research Database (SHAARD), and the Indiana Historic Buildings, Bridges, and Cemeteries Map (IHBBCM). The SHAARD and IHBBCM information was checked against the Interim Report hard copy maps.

IHSSI #139-31-10016 was located within the project area but it has been demolished, as indicated in SHAARD and confirmed via a review of online street-view imagery.

No extant IHSSI resources are located within or adjacent to the project area.

Land surrounding the project area consists of agricultural fields and wooded areas. There are no properties located adjacent to the project area that possess the significance and integrity necessary to be considered potentially eligible for the National Register.

The project bridge (Rush Co. Bridge No. 1; NBI No. 7000001) is a steel beam bridge constructed in 1992. It was not included in INDOT's Historic Bridge Inventory due to its post-1965 construction date.

On November 2, 2012, the Advisory Council on Historic Preservation (ACHP) issued the Program Comment for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges (Program Comment). The Program Comment relieves federal agencies from the Section 106 requirement to consider the effects of undertakings on most concrete and steel bridges built after 1945. On March 19, 2013, federal agencies were approved to use the Program Comment for Indiana projects.

The Program Comment applies for Rush Co. Bridge No. 1 because it has not been previously listed in or determined eligible for listing in the National Register of Historic Places and it is not located in or adjacent to a historic district (Section IV.A of the Program Comment). As an example of a post-1945 steel beam bridge, the bridge is also not one of the types to which the Program Comment does not apply (arch bridges, truss bridges, bridges with movable spans, suspension bridges, cable-stayed bridges, or covered bridges [Section IV.B]).

Additionally, this bridge has not been identified as having exceptional significance for association with a person or event, being a very early or particularly important example of its type in the state or the nation, having

distinctive engineering or architectural features that depart from standard designs, or displaying other elements that were engineered to respond to a unique environmental context (Section IV.C). The bridges also have not been identified as having some exceptional quality. Based on consultation between FHWA, INDOT, SHPO and interested parties, no bridges with exceptional significance were identified in Indiana (Section IV.C). Because the above criteria from the Program Comment have been met, no individual consideration under Section 106 is required for Rush Co. Bridge No. 1.

Based on the available information, as summarized above, no above-ground concerns exist.

Archaeological Resources

An INDOT CRO archaeologist, who met the Secretary of the Interior's Professional Qualification Standards as per 36 CFR Part 61, reviewed and concurred with the archaeological report provided by NS Services, LLC (Bennett and Plunkett 2020).

The records check found that three archaeological reconnaissances have examined portions of the project area (Hixon and Cochran 1986; Stillwell 2006; And Zoll and Cochran 1988). Two sites were documented within the project area, 12Ru-9 and 12-Ru-170. Both were found to be ineligible to the NRHP.

The archaeological reconnaissance consisted of pedestrian survey of an agricultural field and shovel testing all the remaining undisturbed project area. Site 12-Ru-170 was reinvestigated and again found to be ineligible to the NRHP. 12-Ru-9 was, recorded as an isolate in 1986, was not relocated.

The principal investigator found evidence for high energy flooding and concluded that the landform was eroded rather than aggrading. A Phase Ic reconnaissance was not recommended based on these observations. No additional archaeological was recommended.

Accidental Discovery: If any archaeological artifacts or human remains are uncovered during construction, demolition, or earth moving activities, construction in the immediate area of the find will be stopped, and the INDOT Cultural Resources Office and the Division of Historic Preservation and Archaeology will be notified immediately.

INDOT Cultural Resources staff reviewer(s): Anthony Ross and David Moffatt

****Be sure to attach this form to the National Environmental Policy Act documentation for this project. Also, the NEPA documentation shall reference and include the description of the specific stipulation in the PA that qualifies the project as exempt from further Section 106 review.*

MANAGEMENT SUMMARY

In response to a request from Butler, Fairman & Seufert, Inc., an archaeological records check and Phase Ia field reconnaissance have been conducted for the proposed replacement of Rush County Bridge No. 1 (Des. No. 1802929), which carries County Road (CR) 1100 North over Sixmile Creek in Ripley Civil Township, Rush County, Indiana. The need for this project stems from the deteriorated condition of the bridge that has resulted from use over time. The current proposed project would replace the existing bridge over Sixmile Creek as well as realign the bridge approximately 10 to 14 feet to the north to improve the safety of the intersection with CR 900 West. The survey area for this project encompassed a total of approximately 2.23 acres (0.9 hectares) of land including the entire project area.

The archaeological records check for this project was conducted using online information provided by the Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology (IDNR, DHPA) prior to the Phase Ia archaeological field reconnaissance. The results of this search showed that three previous archaeological investigations have been conducted and two previously recorded archaeological sites (12-Ru-9 and 170) are located within portions of the survey area. Although no additional archaeological investigations or historic cemeteries were found near the survey area, one previously recorded archaeological site and six historic properties were found to be located within 1.6 km (1 mi.) of the project.

The Phase Ia archaeological field reconnaissance was conducted by Stacy N. Bennett on March 16, 2020, and, due to project design changes, by Jeffrey A. Plunkett on November 20, 2020. Aside from the existing roadways, the survey area consisted entirely of wooded areas and cultivated agricultural fields. Large portions of the survey area were found to have been previously disturbed by roadway and bridge construction, drainage provisions, buried utilities, and erosion from high-energy flooding events as evidenced by heavy erosion along the stream banks of Sixmile Creek as well as numerous deep drainage channels in the wooded areas surrounding the creek.

One previously recorded archaeological site, 12-Ru-170, was relocated and reinvestigated during this reconnaissance. Although originally identified as a lithic scatter of undetermined cultural affiliation with one historic isolate, only historic artifacts were recovered during the current reconnaissance. The majority of the artifacts recovered were collected from the surface of the cultivated field with a lighter density of artifacts recovered from shovel probes excavated along the frontage of the wooded parcel to the west. All recovered artifacts appear to be associated with a mid-nineteenth century residence, which was once located within the wooded parcel as indicated by historic atlases. It appears likely, given the light density of artifacts recovered from shovel probes, that this residence was located to the north of the survey area. As such, site 12-Ru-170, as currently defined does not appear to be eligible for listing in the NRHP and no further archaeological work is recommended.

Previously recorded archaeological site 12-Ru-9, which originally consisted of only a single broken flake made from glacial chert, was not relocated during these investigations. As a result, it is still considered to be ineligible to the NRHP and no further archaeological work is recommended.

In addition, portions of the survey area as well as the entire project area were also found to be located on Genesee loam, gravelly substratum (Ge), which is a well drained soil found on bottom land near the larger streams in the county. Genesee soils are classified as Inceptisols and as such they do have the potential for buried cultural deposits. That being said; however, these specific soils are also described as being frequently flooded for very brief durations, which suggests that they were located in a high-energy depositional environment where any significant cultural material that might have been deposited would have been heavily reworked and likely destroyed. Field investigations conducted during this study documented heavy erosion along the stream banks of Sixmile Creek and numerous deep drainage channels in the wooded areas surrounding the creek, both of which confirm the high-energy nature of the flooding events in this area. As result of this information, the potential for intact, buried cultural deposits within the project area is low and Phase Ic archaeological subsurface reconnaissance of the area is not recommended.

Based on the results of the Phase Ia archaeological field reconnaissance and other available information, the proposed project should have no effect on significant archaeological resources meeting the criteria established for inclusion to the NRHP. Federal and State environmental provisions concerning the identification of archaeological resources have been accomplished and it is recommended that construction be allowed to proceed as planned. This is with the understanding that if human remains, features, or midden deposits are revealed during construction, any disturbance will cease until an archaeologist is contacted, and mitigation is completed.

This study was conducted in accordance to and compliance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716), the current version of the *Guidebook for Indiana Historic Sites and Structures Inventory - Archaeological Sites* issued by the IDNR, DHPA, the INDOT *Cultural Resources Manual*, and recent amendments to the Indiana Historic Preservation Act (IC 14-21-1). The field work, laboratory analysis, and preparation of the final report and recommendations were accomplished or directly supervised by a Principal Investigator meeting the standards set forth in 36 CFR 61 of the National Historic Preservation Act and 312-IAC-21 of the Indiana Administrative Code.

If surface visibility was estimated to be below 30% and the terrain had less than a 20% slope, shovel probes were used. These probes were placed at 15 m (49.2 ft.) intervals, were 30 cm in diameter, and extended into undisturbed soils or to a maximum depth of 50 cm. All soil removed from the shovel probes was examined by screening it through a ¼" mesh and then replaced. If artifacts were recovered from any of the probes or if on a known or reported site, spacing was reduced to 5 m (16.4 ft) near the periphery of the site and continued until two sequential negative probes were excavated to determine the site boundaries. Artifacts were collected from the probes and parallel transects continued until the site dimensions were defined or the project boundaries had been reached.

In any portion of the survey area where previous disturbance could not be visually determined, an appropriate number of shovel probes were placed to clearly determine if the area, in fact, had been previously disturbed.

All field data and artifacts collected during the Phase Ia archaeological field reconnaissance was brought to the laboratory of NS Services, LLC for processing and temporary curation. Artifacts were cataloged using standard artifact typologies. All recovered cultural material and field notes will be curated at the Department of Anthropology, University of Indianapolis upon approval of the final report.

CONCLUSIONS AND RECOMMENDATION

One previously recorded archaeological site, 12-Ru-170, was relocated and reinvestigated during this reconnaissance. Although originally identified as a lithic scatter of undetermined cultural affiliation with one historic isolate, only historic artifacts were recovered during the current reconnaissance. The majority of the artifacts recovered were collected from the surface of the cultivated field with a lighter density of artifacts recovered from shovel probes excavated along the frontage of the wooded parcel to the west. All recovered artifacts appear to be associated with a mid-nineteenth century residence, which was once located within the wooded parcel as indicated by historic atlases. It appears likely, given the light density of artifacts recovered from shovel probes, that this residence was located to the north of the survey area. As such, site 12-Ru-170, as currently defined does not appear to be eligible for listing in the NRHP and no further archaeological work is recommended.

Previously recorded archaeological site 12-Ru-9, which originally consisted of only a single broken flake made from glacial chert, was not relocated during these investigations. As a

result, it is still considered to be ineligible to the NRHP and no further archaeological work is recommended.

In addition, portions of the survey area as well as the entire project area were also found to be located on Genesee loam, gravelly substratum (Ge), which is a well drained soil found on bottom land near the larger streams in the county. Genesee soils are classified as Inceptisols and as such they do have the potential for buried cultural deposits. That being said; however, these specific soils are also described as being frequently flooded for very brief durations, which suggests that they were located in a high-energy depositional environment where any significant cultural material that might have been deposited would have been heavily reworked and likely destroyed. Field investigations conducted during this study documented heavy erosion along the stream banks of Sixmile Creek and numerous deep drainage channels in the wooded areas surrounding the creek, both of which confirm the high-energy nature of the flooding events in this area. As result of this information, the potential for intact, buried cultural deposits within the project area is low and Phase Ic archaeological subsurface reconnaissance of the area is not recommended.

Based on the results of the Phase Ia archaeological field reconnaissance and other available information, the proposed project should have no effect on significant archaeological resources meeting the criteria established for inclusion to the NRHP. Federal and State environmental provisions concerning the identification of archaeological resources have been accomplished and it is recommended that construction be allowed to proceed as planned. This is with the understanding that if human remains, features, or midden deposits are revealed during construction, any disturbance will cease until an archaeologist is contacted, and mitigation is completed.

This study was conducted in accordance to and compliance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716), the current version of the *Guidebook for Indiana Historic Sites and Structures Inventory - Archaeological Sites* issued by the IDNR, DHPA, the INDOT *Cultural Resources Manual*, and recent amendments to the Indiana Historic Preservation Act (IC 14-21-1). The field work, laboratory analysis, and preparation of the final report and recommendations were accomplished or directly supervised by a Principal Investigator meeting the standards set forth in 36 CFR 61 of the National Historic Preservation Act and 312-IAC-21 of the Indiana Administrative Code.

REFERENCES

Anslinger, C. Michael

1988 Bluegrass: A Middle-Late Archaic Site in Southwestern Indiana. Paper presented at the Midwest Archaeological Conference.

1990 *The Akers Site: A Late Woodland Albee Phase Burial Mound in Warren County, West Central Indiana.* Indiana State University Anthropology Laboratory Technical Report No. 10. Terre Haute, Indiana.

Brittney Layton

From: Ross, Anthony <ARoss3@indot.IN.gov>
Sent: Tuesday, December 22, 2020 1:28 PM
To: Brittney Layton
Cc: Elizabet Biggio; Branigin, Susan; Miller, Shaun (INDOT); Jeff Plunkett (j.plunkett@nsenvservices.com); highway@rushcounty.in.gov; Mcghghy, Donald; Moffatt, Charles D
Subject: RE: Rush County Bridge 1, Des. No. 1802929 MPPA Submission
Attachments: MPPA Determination Form_B-12_Des 1802929_2020-12-22.pdf

Brittney,

Thank you for the submittal of this project information for our review. We have determined that this project falls under Category B-12 of the MPPA, thus concluding the Section 106 process. Please find attached the completed determination forms for inclusion in the CE.

The revised archaeological report has been reviewed and approved by INDOT-CRO. Please forward one hard copy of the report to DHPA, indicating in the cover letter that the project qualified as a Minor Project and therefore the report is for their records only and no formal review is required under Section 106. In addition, we ask that a copy of the DHPA submittal letter be sent to INDOT CRO care of David Moffatt during the time of submission and that the archaeological report be posted to IN SCOPE (please ensure that the uploaded file follows the IN SCOPE naming conventions).

Please keep in mind that if the scope of the project or project limits should change, our office will need to re-examine the information to determine whether the MPPA still applies. Please don't hesitate to contact us should you have any questions or need additional information.

Best,
Anthony

Anthony Ross, Ph.D.
LPA Program Administrator
Cultural Resources Office
Environmental Services
100 N. Senate Ave., Room N758-ES
Indianapolis, IN 46204
Office: (317) 358-9966
Email: aross3@indot.in.gov

*For the latest updates from INDOT's Cultural Resources Office, subscribe to the Environmental Services listserv: https://www.in.gov/indot/3217.htm

Appendix E

Red Flag Investigation

Butler Fairman Seufert
CIVIL ENGINEERS

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Indianapolis, IN 46240-5920
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Branch Locations:
Fort Wayne
Jeffersonville
Lafayette
Merrillville
Plainfield

Founded 1961

Member ACEC INDIANA

Date: March 9, 2020

From: Brittney Layton
Butler, Fairman and Seufert, Inc.
8450 Westfield Boulevard, Suite 300
Indianapolis, IN 46240
BLayton@bfsengr.com

Re: RED FLAG INVESTIGATION
DES #1802929, State Project
Bridge Replacement, Structure No. 70-00001
County Road 1100 North over Six Mile Creek
Rush County, Indiana

PROJECT DESCRIPTION

Brief Description of Project:

Rush County Board of Commissioners proposes replacement of the Rush County Bridge No. 1 which carries County Road 1100 North over the Six Mile Creek. The project is located on County Road 1100 North approximately 0.1 mile west of CR 900 W, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle.

The scope of work for this project includes replacing the existing structure with either a 3-span continuous concrete box beam bridge or a single span bulb t-beam structure. The new structure will realign the existing road to the west to straighten out the horizontal alignment.

Bridge and/or Culvert Project: Yes ☒ No ☐ Structure # _70-00001_____

If this is a bridge project, is the bridge Historical? Yes ☐ No ☒ , Select ☐ Non-Select ☐
(Note: If the project involves a historical bridge, please include the bridge information in the Recommendations Section of the report).

Proposed right of way: Temporary ☐ # Acres _N/A_ Permanent ☒ # Acres _3.5____, Not Applicable ☐

Type of excavation: Excavation up to a depth of approximately 3 to 4 ft. will be required to remove the existing bridge, the existing roadway, and to create new roadside ditches.

Maintenance of traffic: The project will utilize a temporary road closure and local detour.

Work in waterway: Yes ☒ No ☐ Below ordinary high water mark: Yes ☒ No ☐

State Project: ☐ LPA: ☒

Any other factors influencing recommendations: The project description is subject to additional changes as preliminary design progresses.

INFRASTRUCTURE TABLE AND SUMMARY

Infrastructure Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Religious Facilities	**N/A**	Recreational Facilities	**N/A**
Airports[1]	**N/A**	Pipelines	**1**
Cemeteries	**N/A**	Railroads	**N/A**
Hospitals	**N/A**	Trails	**N/A**
Schools	**N/A**	Managed Lands	**N/A**

[1]In order to complete the required airport review, a review of public airports within 3.8 miles (20,000 feet) is required.

Explanation:

Pipelines: One (1) pipeline (segment) is located within the 0.5 search radius. The feature is located approximately 0.47 mile south of the project area. No impact is expected.

WATER RESOURCES TABLE AND SUMMARY

Water Resources Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
NWI - Points	**1**	Canal Routes - Historic	**N/A**
Karst Springs	**N/A**	NWI - Wetlands	**7**
Canal Structures – Historic	**N/A**	Lakes	**3**
NPS NRI Listed	**N/A**	Floodplain - DFIRM	**7**
NWI-Lines	**8**	Cave Entrance Density	**N/A**
IDEM 303d Listed Streams and Lakes (Impaired)	**4**	Sinkhole Areas	**N/A**
Rivers and Streams	**7**	Sinking-Stream Basins	**N/A**

Explanation:

NWI-Point: One (1) NWI-Point is located within the 0.5 mile search radius. The feature is located approximately 0.41 mile south of the project area. No impact is expected.

NWI-Line: Eight (8) NWI-Lines are located within the 0.5 mile search radius. The nearest feature is located within the project area. A Waters of the US Report will be prepared and coordination with the appropriate agency, if applicable, will occur.

IDEM 303d Listed Streams and Lakes (Impaired): Four (4) IDEM 303d Listed Streams and Lakes (Impaired) are located within the 0.5 mile search radius. Six Mile Creek is located within the project area. Six Mile Creek is listed as impaired for E. coli.

- Six Mile Creek is listed for E. coli. Workers who are working in or near water with E. coli should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

Rivers and Streams: Seven (7) Rivers and Streams are located within the 0.5 mile search radius. Six Mile Creek intersects the project area. A Waters of the US Report will be prepared and coordination with the appropriate agency, if applicable, will occur.

Wetlands: Seven (7) wetlands are located within the 0.5 mile search radius. One (1) wetland polygon intersects the project area. A Waters of the US Report will be prepared and coordination with the appropriate agency, if applicable, will occur.

Lakes: Three (3) lakes are located within the 0.5 mile search radius. The nearest feature is located approximately 0.3 mile northeast of the project area. No impact is expected.

Floodplain-DFIRM: Seven (7) floodplain polygons are located within the 0.5 mile search radius. The project area is located within one floodplain polygon. Coordination with the appropriate agency, if applicable, will occur.

URBANIZED AREA BOUNDARY SUMMARY

Explanation: The project is not mapped within an Urbanized Area Boundary (UAB). No impact is expected.

MINING AND MINERAL EXPLORATION TABLE AND SUMMARY

Mining/Mineral Exploration Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Petroleum Wells	**1**	Mineral Resources	**N/A**
Mines – Surface	**N/A**	Mines – Underground	**N/A**

Explanation:

Petroleum Well: One (1) petroleum well is located within the 0.5 mile search radius. The feature (IGS #145905, operated by Ripley Northwest Gas Co.) is located approximately 0.19 mile south of the project area. No impact is expected.

HAZARDOUS MATERIAL CONCERNS TABLE AND SUMMARY

Hazardous Material Concerns Indicate the number of items of concern found within the 0.5 mile search radius. If there are no items, please indicate N/A:			
Superfund	**N/A**	Manufactured Gas Plant Sites	**N/A**
RCRA Generator/ TSD	**N/A**	Open Dump Waste Sites	**N/A**
RCRA Corrective Action Sites	**N/A**	Restricted Waste Sites	**N/A**
State Cleanup Sites	**N/A**	Waste Transfer Stations	**N/A**
Septage Waste Sites	**N/A**	Tire Waste Sites	**N/A**
Underground Storage Tank (UST) Sites	**N/A**	Confined Feeding Operations (CFO)	**N/A**
Voluntary Remediation Program	**N/A**	Brownfields	**N/A**
Construction Demolition Waste	**N/A**	Institutional Controls	**N/A**
Solid Waste Landfill	**N/A**	NPDES Facilities	**N/A**
Infectious/Medical Waste Sites	**N/A**	NPDES Pipe Locations	**N/A**
Leaking Underground Storage (LUST) Sites	**N/A**	Notice of Contamination Sites	**N/A**

Explanation: No Hazardous Material Concerns were identified within the 0.5 mile search radius. No impact is expected.

ECOLOGICAL INFORMATION SUMMARY

The Rush County listing of the Indiana Natural Heritage Data Center information on endangered, threatened, or rare (ETR) species and high quality natural communities is attached with ETR species highlighted. A preliminary review of the Indiana Natural Heritage Database by INDOT Environmental Services did not indicate the presence of ETR species within the 0.5 mile search radius. Coordination with USFWS and IDNR will occur.

A review of the USFWS Database did not indicate the presence of endangered bat species in or within 0.5 mile of the project area. The project area is located within a rural wooded area surrounded by farms and scattered with wooded areas. The May 14, 2019 inspection report for Bridge 70-00001 states that no evidence of bats was seen or heard under (or in) the bridge. The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects".

RECOMMENDATIONS SECTION

Include recommendations from each section. If there are no recommendations, please indicate N/A:

INFRASTRUCTURE: N/A

WATER RESOURCES:

The presence of the following water resources will require the preparation of a Waters of the US report and coordination with the appropriate agency, if applicable, will occur:

- One (1) NWI-Line feature is located within the project area.
- Six Mile Creek intersects the project area.
- One (1) wetland intersects the project area.

Six Mile Creek is listed as impaired for E. coli.

- Six Mile Creek is listed for E. coli. Workers who are working in or near water with E. coli should take care to wear appropriate PPE, observe proper hygiene procedures, including regular hand washing, and limit personal exposure.

The project area lies within one (1) floodplain polygon. Coordination with the appropriate agency, if applicable, will occur.

URBANIZED AREA BOUNDARY: N/A

MINING/MINERAL EXPLORATION: N/A

HAZMAT CONCERNS: N/A

ECOLOGICAL INFORMATION:

Coordination with USFWS and IDNR will occur. The range-wide programmatic consultation for the Indiana Bat and Northern Long-eared Bat will be completed according to the most recent "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects".

Prepared by:
Brittney Layton, M.A.
Environmental Scientist
Butler, Fairman, & Seufert, Inc.

Graphics:

A map for each report section with a 0.5 mile search radius buffer around all project area(s) showing all items identified as possible items of concern is attached. If there is not a section map included, please change the YES to N/A:

SITE LOCATION: YES **Quadrangle Map removed for space conservation. See Appendix B.**

INFRASTRUCTURE: YES

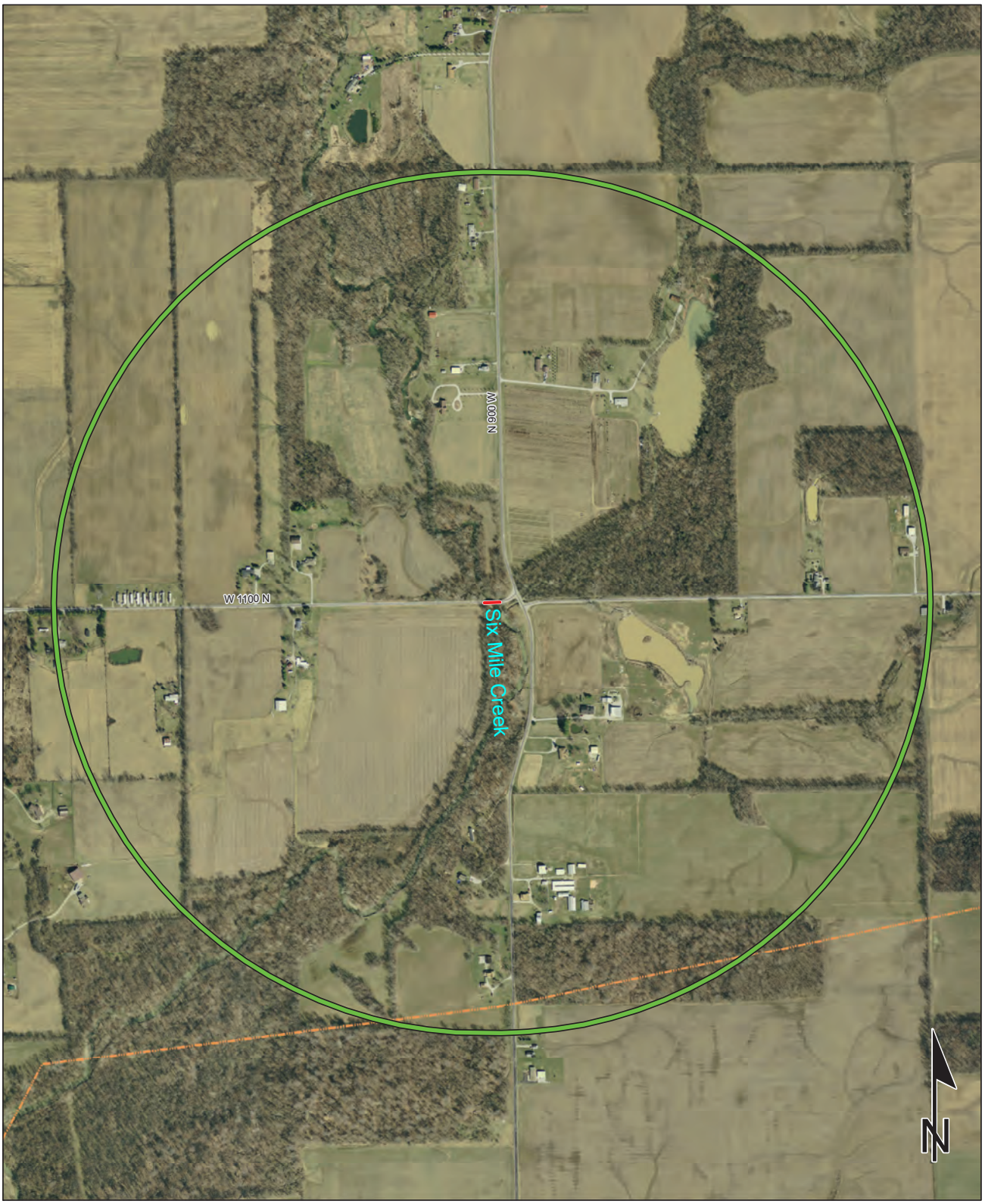
WATER RESOURCES: YES

URBANIZED AREA BOUNDARY: N/A

MINING/MINERAL EXPLORATION: YES

HAZMAT CONCERNS: N/A

Red Flag Investigation - Infrastructure
Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana



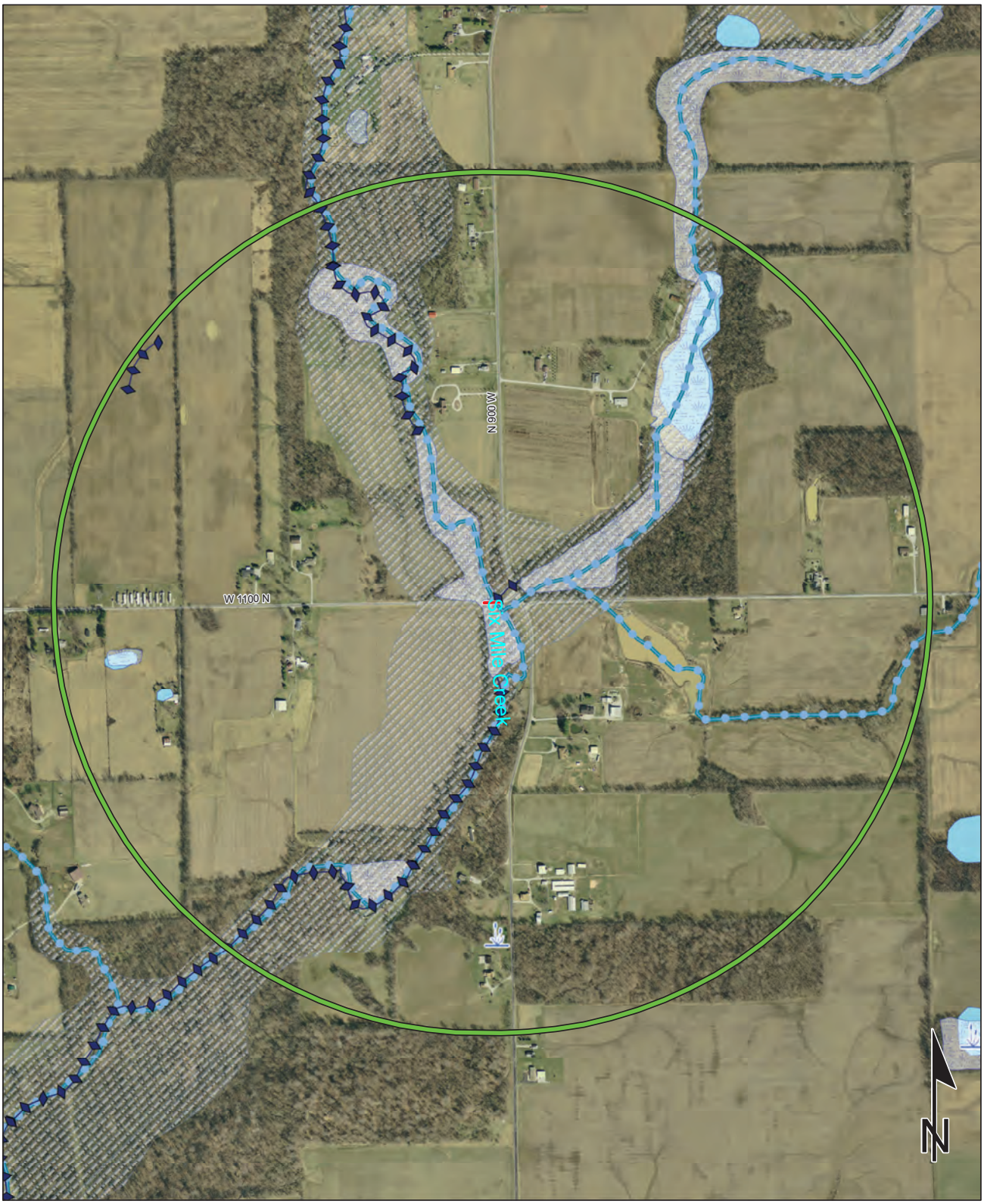
0.1 0.05 0 0.1 Miles

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

- Religious Facility
- Airport
- Cemeteries
- Hospital
- School
- Recreation Facility
- Pipeline
- Railroad
- Trails
- Managed Lands
- County Boundary
- Project Area
- Half Mile Radius
- Toll
- Interstate
- State Route
- US Route
- Local Road

Red Flag Investigation - Water Resources
Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana



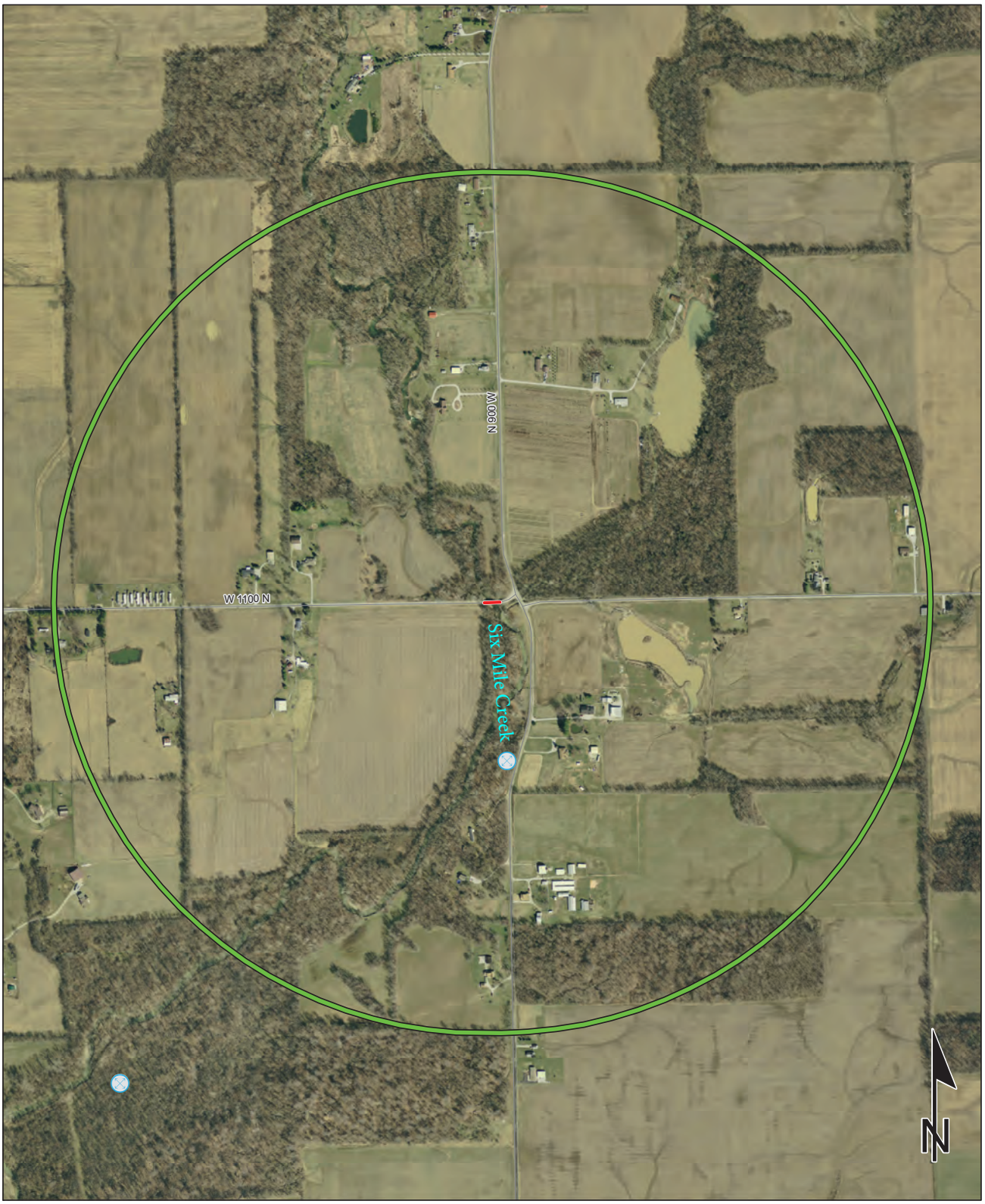
0.1 0.05 0 0.1 Miles

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

- NWI - Point
- Karst Spring
- NWI- Line
- Impaired_Stream_Lake
- NPS NRI listed
- River
- Canal Structure - Historic
- Canal Route - Historic
- Wetlands
- Lake
- Floodplain - DFIRM
- Cave Entrance Density
- Sinkhole Area
- Sinking-Stream Basin
- County Boundary
- Project Area
- Half Mile Radius
- Toll
- Interstate
- State Route
- US Route
- Local Road

Red Flag Investigation - Mining and Mineral Resources
Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge Replacement
Rush County, Indiana



0.1 0.05 0 0.1 Miles

Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

- Oil and Gas Wells
- Mineral Resources
- Mine - Surface
- Mine - Underground
- County Boundary
- Project Area
- Half Mile Radius
- Toll
- Interstate
- State Route
- US Route
- Local Road

Indiana County Endangered, Threatened and Rare Species List

County: Rush

Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Toxolasma lividus	Purple Lilliput	C	SSC	G3Q	S2
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
Reptile					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Bird					
Haliaeetus leucocephalus	Bald Eagle		SSC	G5	S2
Lanius ludovicianus	Loggerhead Shrike		SE	G4	S3B
Tyto alba	Barn Owl		SE	G5	S2
Mammal					
Myotis sodalis	Indiana Bat	LE	SE	G2	S1
Nycticeius humeralis	Evening Bat		SE	G5	S1
Taxidea taxus	American Badger		SSC	G5	S2
Vascular Plant					
Carex cephaloidea	Thinleaf Sedge		ST	G5	S2
Crataegus coccinea var. coccinea	Scarlet Hawthorn		ST	G5	S2
High Quality Natural Community					
Forest - upland mesic Central Till Plain	Central Till Plain Mesic Upland Forest		SG	GNR	S3

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting

State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list

GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank

SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Appendix F

Ecological and Water Resources

"WATERS OF THE U.S." DETERMINATION REPORT

County Road 1100 North over Six Mile Creek, Rush County, Indiana
Bridge Project
INDOT Des No. 1802929
Structure No. 71-00001 (Rush County Bridge No. 1)
Prepared By: Ryan Scott,
rscott@bfsengr.com, 317-713-4615
Butler, Fairman & Seufert, Inc.
July 24, 2020

Date of Field Investigation(s): August 29, 2019

Project Location: This project is located on CR 1100 N, 0.1 mile west of CR 900 W, in Rush County, Indiana. The overall length of the proposed project is approximately 1,000 feet along CR 1100 N and an additional incidental length of 350 feet along CR 900 W. The project is also located in Sections 2, 3 10, and 11, Township 15 North, Range 15 North on the United States Geological Survey (USGS) Knightstown, Indiana Quadrangle (see page 2).

LAT 39.771 N; LONG -85.614 W

Project Description:

Rush County Board of Commissioners along with the Indiana Department of Transportation (INDOT) and Federal highway Administration (FHWA) proposes a project involving bridge improvements to Bridge No. 1 carrying CR 1100 N over Six Mile Creek, in Rush County. This is a federal-aid project.

This project will entail removing the existing structure and replacing it with a two-lane, three (3) span continuous concrete box beam bridge or a bulb t-beam structure consisting of two spans. The new bridge will have a clear roadway width of 28 feet, and an overall length of approximately 135 feet. Work will include the realignment of the center line of the road by relocating the bridge a maximum of 15 feet to the north of its existing location to alleviate the current sight distance issues. The project is located primarily in a forested riparian floodplain (northwest quadrant of the CR 1100 N / CR 900 W intersection. A combination of forested and non-forested floodplain conditions exists on the east side of CR 900 W, and in the southwest quadrant of the CR 1100 N / CR 900 W intersection. The east segment of CR 1100 N intersects CR 900 W approximately 70 feet south of the west leg of CR 1100 N, which includes Bridge No. 1. Another bridge is located immediately southeast of Bridge No. 1 and carries CR 900 W over Charlottes Brook. No work will occur to this adjacent bridge.

DESKTOP RECONNAISSANCE

Site(s) Background:

Prior to the field investigation, several reference materials were consulted to gain information about the site. The USGS Knightstown, IN quadrangle was used to determine contours of the site and locate any water bodies in the area, as well as to provide a legal description of the area (see page 2). The Soil Conservation Service's [now known as the Natural Resources Conservation Service (NRCS)] Web Soil Survey website for Rush County, Indiana was consulted to determine if the project area contained any soils listed in either the *Hydric Soils of the United States* manual or the state list of hydric soils publication, along with a description of characteristics displayed by the mapped soil types of the area (see pages 9–11). The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map was used to find and classify any previously cataloged wetlands in the project area (see page 8). The Federal Emergency Management Agency's (FEMA) floodplain map was consulted to gain an understanding of historic flood locations and frequency (see page 12). All this information provided a background for the hydrologic regime of the area.

Soils:

According to the Soil Survey Geographic (SSURGO) Database for Rush County, Indiana, the project area has a mapped soil type with hydric inclusions (see pages 9–11). The following soil types are mapped within the proposed project limits:

Soil Map Summary Table
Structure No. 71-00001 carrying CR 1100 N over Six Mile Creek
Rush County, Indiana
Des No. 1802929

Soil Name	Map Abbreviation	Hydric Range
Shoals silt loam, 0-2% slopes, frequently flooded, brief duration	Sh	1-32% Hydric Inclusions (4%)
Genesee loam, gravelly substratum	Ge	1-32% Hydric Inclusions (3%)
Ockley silt loam, 0-2% slopes	OcA	0% Not Hydric
Sleeth silt loam, 0-2% slopes	Sm	1-32% Hydric Inclusions (3%)

The results of the soil mapping indicate that the soils in the project area are either somewhat poorly drained or well drained. While Shoals silt loam and Sleeth silt loam have drainage class ratings of somewhat poorly drained, Ockley silt loam and Genesee loam both have a drainage class rating of well drained. The vast majority of the project occurs with areas of mapped Genesee loam.

National Wetland Inventory (NWI) Information:

According to the NWI website, palustrine forested, broad-leaved deciduous, temporary flooded wetlands are mapped along Six Mile Creek and Charlottes Brook (see page 8). The NWI map also lists two riverine, unknown perennial, unconsolidated bottom, permanently flooded (R5UBH) waterways (Six Mile Creek and Charlottes Brook) in the project area.

Hydrologic Unit Code (HUC): 051202040802, Six Mile Creek

Attached documents:
* Maps (Project Location: State, Topographic, NRCS Soils, NWI, FEMA FIRM)
* Photographs with orientation map

NOTE: State & Topographic Maps removed for space conservation. See Appendix B.

FIELD RECONNAISSANCE

Field visits to the project area were conducted on August 29, 2019 and July 8, 2020 by Butler, Fairman & Seufert, Inc. (BF&S). The footprint of the investigation consisted of the area that has the potential to be impacted based on the proposed project. The area of investigation was evaluated for the presence or absence of wetlands and waterways. Three (3) waterways were first observed on the NWI maps and were confirmed during the field investigation: Six Mile Creek, Charlottes Brook, and UNT to Charlottes Brook. The upstream drainage area of Six Mile Creek at the study location is approximately 24.1 square miles (Charlottes Brook and UNT to Charlottes Brook have upstream drainage areas of 2.6 square miles and 0.92 square miles, respectively). Approximately 2.1 acres were investigated. The study area is approximately 1,000 feet along CR 1100 N and extends to a maximum of 100 feet north of CR 1100 N (at the bridge). Approximately 200 feet along CR 900 W was studied, centered on the north

intersection of CR 1100 N, and the study area extended approximately 50 feet east of the roadway centerline. The study limits included the right-of-way for the length and width of the project plus areas with the potential to be impacted. The area was investigated by walking transects east and west within the study limits. Ordinary high water mark (OHWM) and bankfull measurements were taken when present at a water feature. If present, roadside ditches along the roadway were examined for possible jurisdictional status.

Waterways:

Three (3) waterways were observed within the project area: Six Mile Creek, Charlottes Brook and UNT to Charlottes Brook. Six Mile Creek, identified as a perennial USGS blue line stream, (see page 2), flows south through the project area. Six Mile Creek is classified as R4SBCx (riverine, intermittent, streambed, seasonally flooded, excavated). Six Mile Creek has an approximate 52-foot bankfull width and approximate average of 3.2-foot bankfull depth. The ordinary high water mark (OHWM) depth is approximately 1.8 feet and the OHWM width is approximately 35 feet. The substrate of Six Mile Creek is primarily sand/loose rock. Six Mile Creek would be classified as being of relatively good quality due to the presence of riffles and pools and meanders, and an intact forested riparian corridor and relatively wide floodplain. Six Mile Creek should be considered a "Waters of the United States".

Charlottes Brook, identified as an intermittent USGS blue line stream, (see page 2), flows southwest to Six Mile Creek through the project area. Charlottes Brook has an approximate 24-feet bankfull width and approximate average of 3.5-foot bankfull depth. The ordinary high water mark (OHWM) depth is approximately 3.0 feet and the OHWM width is approximately 20.5 feet. The substrate of Charlottes Brook is primarily sand/gravel. Charlottes Brook would be classified as being of relatively average quality due riffles and pools and meanders, a narrow forested riparian corridor and steep/relatively unstable banks. Charlottes Brook should be considered a "Waters of the United States".

UNT to Charlottes Brook, identified as an intermittent USGS blue line stream, (see page 2), flows west to Charlottes Brook southeast of the project area. UNT to Charlottes Brook has an approximate 9-feet bankfull width and approximate average of 3.5-foot bankfull depth. The ordinary high water mark (OHWM) depth is approximately 2.0 feet and the OHWM width is approximately 7 feet. The substrate of UNT to Charlottes Brook is primarily sand/gravel. UNT to Charlottes Brook would be classified as being of relatively poor quality due the absence of riffle/pool complexes, lack of meanders, a narrow forested riparian corridor and steep/relatively unstable banks. Charlottes Brook should be considered a "Waters of the United States".

Stream Summary Table
Structure No. 71-00001 carrying CR 1100 N over Six Mile Creek
Rush County, Indiana
Des No. 1802929

Water Feature Name	Photos	Lat/Long	OHWM Width (ft)	OHWM Depth (ft)	USGS Blue-Line? Type?	Riffles ? Pools?	Quality	Substrate	Likely Water of the U.S.?	Linear ft in study area
Six Mile Creek	1,2	39.77115 N, -85.61436 W	35.0	1.8	Perennial	Yes	Good	Sand/Loose rock	Yes	100
Charlottes Brook	7	39.77162 N, -85.61251W	20.5	3.0	Intermittent	Yes	Average	Sand/gravel	Yes	50
UNT to Charlottes Brook	8	39.77131 N, -85.61233 W	7.0	2.0	Intermittent	No	Poor	Sand/gravel	Yes	50

Roadside Ditches:

No roadside ditches were observed within or adjacent to the project area.

Wetlands:

A total of four (4) data points were advanced in the four (4) quadrants of the bridge to determine the presence or absence of wetlands meeting the criteria of the 1987 Corps of Engineers Wetland Determination Manual and the Midwest Supplement.

No wetland areas were observed during the field investigation of the project area surrounding the CR 1100 N bridge over Six Mile Creek. The NWI map lists a palustrine, forested, broad-leaved deciduous, temporary flooded (PFO1A) wetland in the northwest, southwest and northeast quadrants of the CR 1100 N / CR 900 W intersection. A data point was advanced in each of these quadrants and did not meet all the indicators of a wetland: hydric vegetation, hydric soil, and hydrology (see pages 13 - 20 for the wetland data forms).

Wetland Plot Data Summary Table
Structure No. 71-00001 carrying CR 1100 N over Six Mile Creek
Rush County, Indiana
Des No. 1802929

Data Point	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Within a Wetland
1	No	No	Yes	No
2	No	No	Yes	No
3	Yes	No	No	No
4	Yes	No	No	No

Open Water:

No open water areas were observed in the investigated area.

Floodplain:

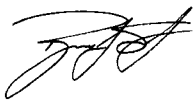
The project is located in a regulated floodway (see page 12).

Conclusion and Recommendations:

Field observations revealed that the investigated area contained one blue line, perennial stream, and two blue line, intermittent streams within the right-of-way that exhibit OHWM characteristics that likely makes them Waters of the U.S. Every effort should be taken to avoid and minimize impacts to the waterways. If impacts are necessary, then mitigation may be required. The INDOT Environmental Services Division should be contacted immediately if impacts will occur. The final determination of jurisdictional waters is ultimately made by the U.S. Army Corps of Engineers (USACE). This report is our best judgment based on the guidelines set forth by the USACE.

Acknowledgement:

This waters determination has been prepared based on the best available information, interpreted in the light of the investigator's training, experience and professional judgement in conformance with the 1987 Corps of Engineers Wetlands Delineation Manual, the appropriate regional supplement, the USACE Jurisdictional Determination Form Instructional Guidebook, and other appropriate agency guidelines.



Ryan Scott
Director of Environmental Services,
Butler, Fairman, & Seufert, Inc.

NOTE: State & Topographic Maps removed for space conservation. See Appendix B.

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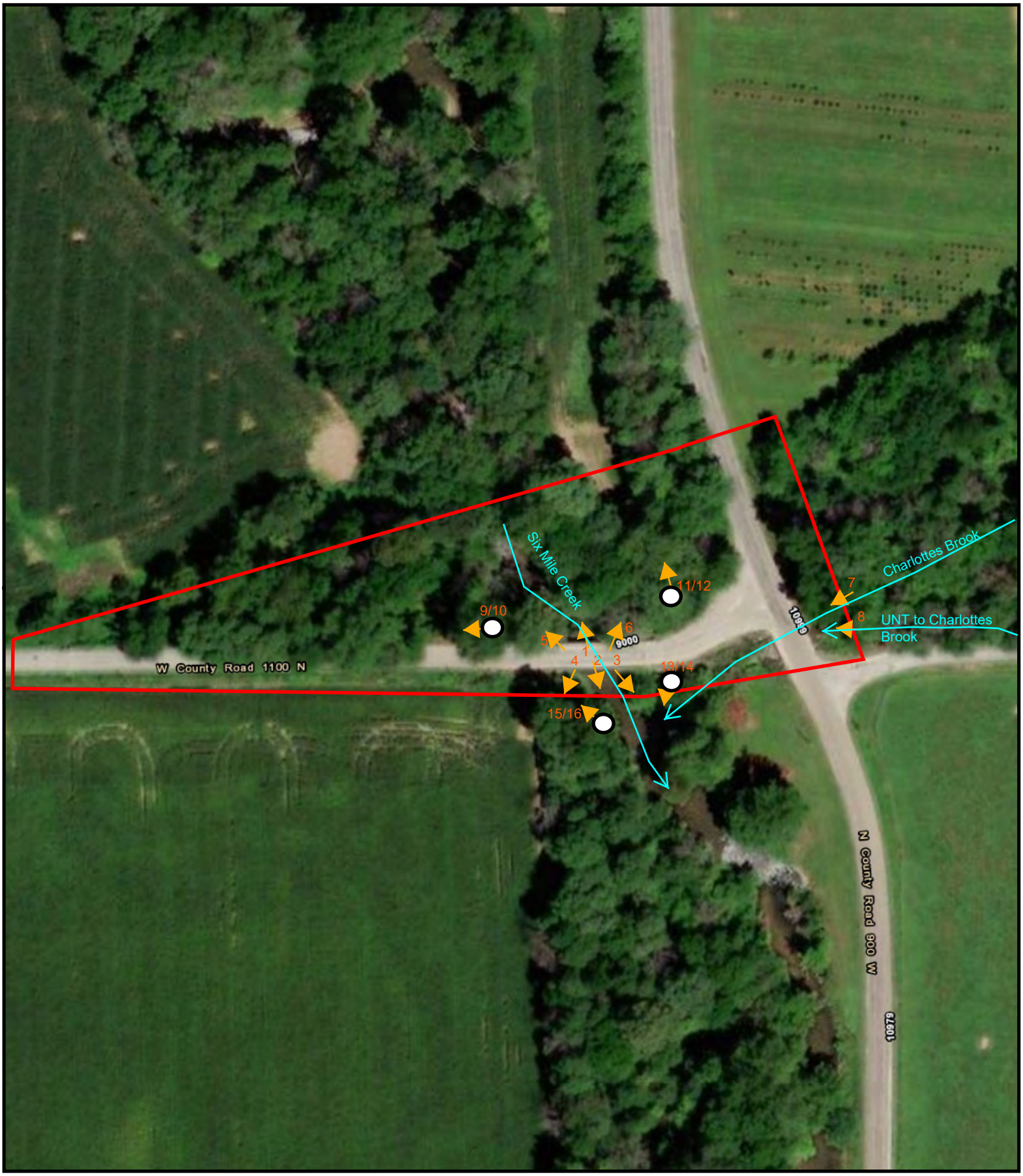


0 50 100 200 Feet

Aerial Map-Photo Locations

Bridge No. 1 carrying CR 1100 N over Six Mile Creek
Des No. 1802929, Bridge
Rush County, Indiana

Legend

- Photo Location
- Project Area
- Data Point

Map Source: Indiana Geological Survey (IGS), IndianaMap, 2020
ArcGIS Online (ESRI) World Imagery.

Photo 1: Looking south (downstream) along Six Mile Creek from Rush Co. Bridge No. 1

Photo 2. Looking north (upstream) along Six Mile Creek from Rush Co. Bridge No. 1

Photo 3. View of SE Quadrant of Rush Co. Bridge No. 1.

Photo 4. View of SW Quadrant of Rush Co. Bridge No. 1

Photo 5: View of NW Quadrant of Rush Co. Bridge No. 1

Photo 6. View of NE Quadrant of Rush Co. Bridge No. 1

Photo 7. Looking west (downstream) along Charlottes Brook towards CR 900 West

Photo 8. Looking west (downstream) along UNT to Charlottes Brook towards CR 900 West

Photo 9: View of Data Point 1 in the NW Quad of Bridge No. 1

Photo 10. View of Data Point 1 soil sample

Photo 11. View of Data Point 2 in the NE Quad of Bridge No. 1

Photo 12. View of Data Point 2 soil sample

Photo 13: View of Data Point 3 in the SE Quad of Bridge No. 1

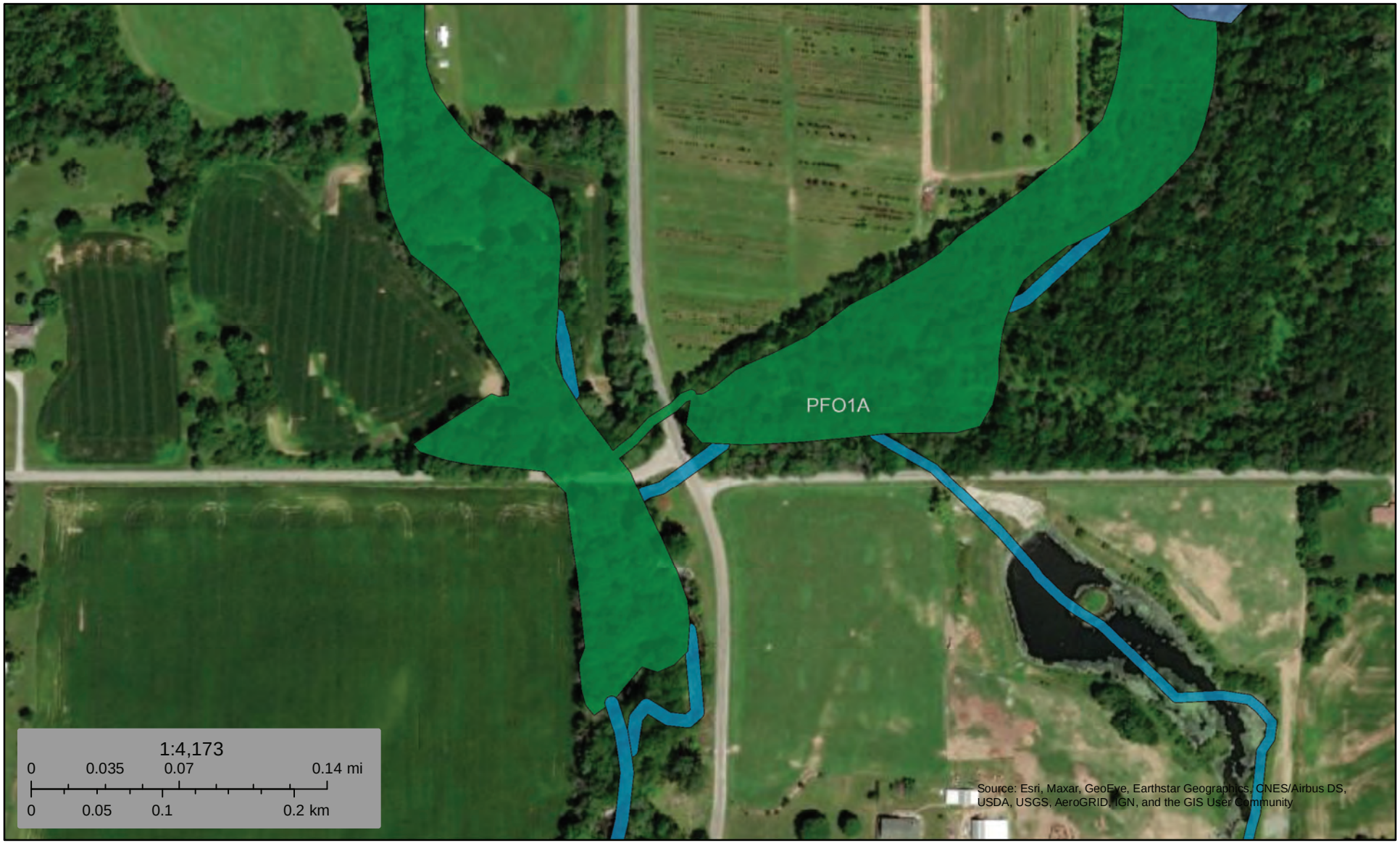
Photo 14. View of Data Point 3 soil sample

Photo 15. View of Data Point 4 in the SW Quad of Bridge No. 1

Photo 16. View of Data Point 4 soil sample

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



July 12, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Map Scale: 1:2,030 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rush County, Indiana
Survey Area Data: Version 24, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

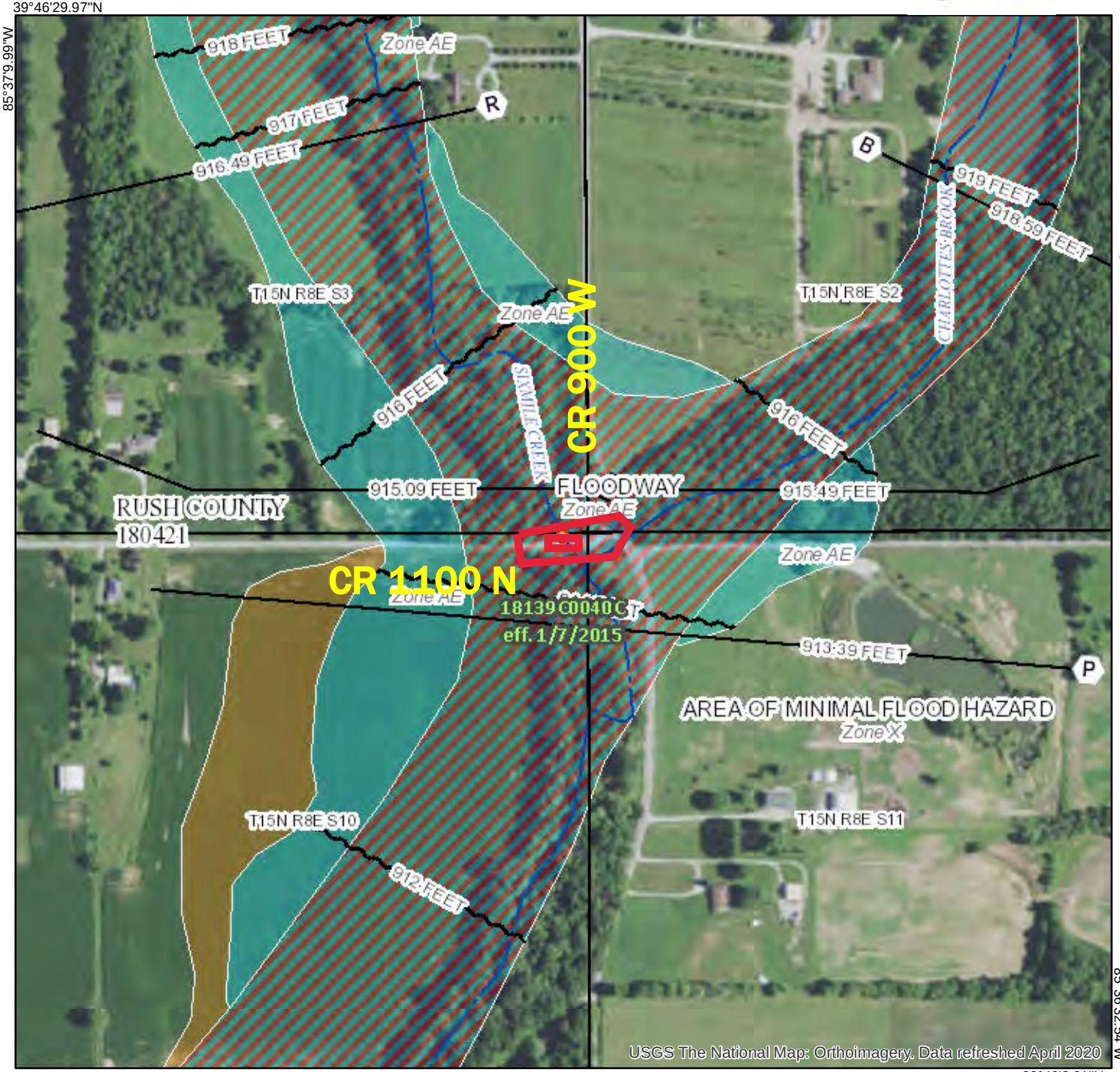
Date(s) aerial images were photographed: Oct 1, 2011—Feb 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ge	Genesee loam, gravelly substratum	3.0	74.8%
OcA	Ockley silt loam, 0 to 2 percent slopes	0.3	7.4%
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	0.3	7.7%
Sm	Sleeth silt loam, 0 to 2 percent slopes	0.4	10.1%
Totals for Area of Interest		**4.0**	**100.0%**

National Flood Hazard Layer FIRMette



0 250 500 1,000 1,500 2,000 Feet

1:6,000

Study Area

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/12/2020 at 9:15:15 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bridge No. 1 Carrying CR 1100 N over Six Mile Creek City/County: Near Town of Carthage / Rush County Sampling Date: 8-29-2019

Applicant/Owner: Rush County Board of Commissioners State: IN Sampling Point: 1

Investigator(s): Ryan Scott (BF&S Inc.) Section, Township, Range: S. 3, T. 15 N, R. 8E

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): slighly convex

Slope (%): <1% Lat: 39.771267 Long: -85.614749 Datum: NAD83

Soil Map Unit Name: Genesee loam, gravelly substratum NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Sample point taken in the northwest quadrant of the bridge, approximately 40 feet north of CR 1100 North and 50 feet west of the west edge of Six Mile Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus pennsylvanica*	15	N	FACW
2. *Platanus occidentalis*	15	N	FACW
3. *Junglans nigra*	50	Y	FACU
4.			
5.			
	80 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Cornus amomum*	15	Y	FACW
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. *Equisetum hyemale*	20	Y	FACW
2. *Solidago Canadensis*	10	N	FAC
3. *Smilax rotundifolia*	10	N	FAC
4. *Urtica dioica*	20	Y	FACW
5. *Geranium maculatum*	20	Y	FACU
6. *Hesperis matronalis*	20	Y	FACU
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1. *Parthenocissus quinquefolia*	15	Y	FACU
2.			
	15 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 85	x 2 =	170
FAC species 20	x 3 =	60
FACU species 105	x 4 =	420
UPL species	x 5 =	
Column Totals: 210 (A)		650 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/2	100					silt loam	blocky
10-16	10 YR 4/3	100					silt loam	0.5" ribbon

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

No; 2-4

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bridge No. 1 Carrying CR 1100 N over Six Mile Creek City/County: Near Town of Carthage / Rush County Sampling Date: 8-29-2019

Applicant/Owner: Rush County Board of Commissioners State: IN Sampling Point: 2

Investigator(s): Ryan Scott (BF&S Inc.) Section, Township, Range: S. 3, T. 15 N, R. 8E

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): slighly convex

Slope (%): <1% Lat: 39.771328 Long: , -85.614188 Datum: NAD83

Soil Map Unit Name: Genesee loam, gravelly substratum NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	
Hydric Soil Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Wetland Hydrology Present?	Yes X	No _____	

Remarks: Sample point taken in the northeast quadrant of the bridge, approximately 40 feet north of CR 1100 North and 50 feet eastof the east edge of Six Mile Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	15	N	FAC
2. *Junglans nigra*	70	Y	FACU
3.			
4.			
5.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1. *Smilax rotundifolia*	10	N	FAC
2. *Urtica dioica*	10	N	FACW
3. *Geranium maculatum*	20	Y	FACU
4. *Hesperis matronalis*	20	Y	FACU
5. *Asarum canadense*	30	Y	FACU
6. *Liatris aspera*	5	N	UPL
7.			
8.			
9.			
10.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1. *Parthenocissus quinquefolia*	15	Y	FACU
2.			
	15	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 10	x 2 =	20
FAC species 25	x 3 =	75
FACU species 155	x 4 =	620
UPL species 5	x 5 =	25
Column Totals: 195 (A)		740 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	100					silt loam	blocky 0.5" ribbon

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bridge No. 1 Carrying CR 1100 N over Six Mile Creek City/County: Near Town of Carthage / Rush County Sampling Date: 8-29-2019

Applicant/Owner: Rush County Board of Commissioners State: IN Sampling Point: 3

Investigator(s): Ryan Scott (BF&S Inc.) Section, Township, Range: S. 3, T. 15 N, R. 8E

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): convex

Slope (%): 3% Lat: 39.771069 Long: -85.614225 Datum: NAD83

Soil Map Unit Name: Genesee loam, gravelly substratum NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks: Sample point taken in the southeast quadrant of the bridge, approximately 20 feet south of CR 1100 North and 20 feet east of the east edge of Six Mile Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15-feet)			
1. *Acer negundo*	15	Y	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. *Elymus canadensis*	10	N	FACU
2. *Ambrosia trifida*	10	N	FAC
3. *Polygonum virginianum*	20	Y	FAC
4. *Rudbeckia laciniata*	10	N	FACW
5. *Pilea pumila*	10	N	FACW
6. *Polygonum cespitosum*	10	N	FACU
7. *Impatiens capensis*	10	N	FACW
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1. *Vitis vulpina*	10	Y	FAC
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	70					silty clay loam	1.25" ribbon
	10 YR 3/3	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Bridge No. 1 Carrying CR 1100 N over Six Mile Creek City/County: Near Town of Carthage / Rush County Sampling Date: 8-29-2019

Applicant/Owner: Rush County Board of Commissioners State: IN Sampling Point: 4

Investigator(s): Ryan Scott (BF&S Inc.) Section, Township, Range: S. 3, T. 15 N, R. 8E

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): convex

Slope (%): 3% Lat: 39.771065 Long: -85.614375 Datum: NAD83

Soil Map Unit Name: Genesee loam, gravelly substratum NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:
Sample point taken in the southwest quadrant of the bridge, approximately 20 feet south of CR 1100 North and 20 feet west of the west edge of Six Mile Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15-feet)			
1. *Acer negundo*	15	Y	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. *Elymus canadensis*	10	N	FACU
2. *Ambrosia trifida*	10	N	FAC
3. *Polygonum virginianum*	20	Y	FAC
4. *Rudbeckia laciniata*	10	N	FACW
5. *Pilea pumila*	20	Y	FACW
6. *Polygonum cespitosum*	10	N	FACU
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1. *Vitis vulpina*	10	Y	FAC
2.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 4/2	90					silty clay loam	1.5" ribbon
	10 YR 3/3	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: July 24, 2020

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: Ryan Scott, Butler, Fairman, & Seufert, Inc., 8450 Westfield Blvd., Indianapolis, IN 46240

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Indiana County/parish/borough: Rush City: near Town of Carthage

Center coordinates of site (lat/long in degree decimal format):
LAT 39.771 N; LONG -85.614 W

Universal Transverse Mercator:
104728.26,4412541.71,UTM17N

Name of nearest waterbody: Six Mile Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Six Mile Creek	39.77115 N	-85.61436 W	110 linear feet	non-wetland waters	Section 404
Charlottes Brook	39.77162 N	-85.61251 W	50 liner feet	non-wetland waters	Section 404
UNT to Charlottes Brook	39.77131 N	-85.61233 W	50 linear feet	non-wetland waters	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: Knightstown USGS 7.5-minute Quadrangle, Aerial and State Location Map .
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [ ] U.S. Geological Survey Hydrologic Atlas: _____.
  - [ ] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: USGS Knightstown, IN 7.5-minute Quad .
- [x] Natural Resources Conservation Service Soil Survey. Citation: Websoil Survey Rush County, IN .
- [x] National wetlands inventory map(s). Cite name: USFWS Rush County, IN Map .
- [ ] State/local wetland inventory map(s): _____.
- [x] FEMA/FIRM maps: Rush County .
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): 2017 Orthophotography .
  or [x] Other (Name & Date): Site Photos taken on August 29, 2019 .
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	_____
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Appendix G

Public Involvement

SAMPLE NOTICE OF SURVEY LETTER

\\bfsnt241\Jobs5\639000.0000\ProjDevelopment\Correspondence\6390 Survey Notice 01082020.doc

January 13, 2020

NOTICE OF SURVEY

This letter was sent to the attached property owners.

RE: Topographic Survey for the Reconstruction of Bridge 1 Carrying CR 1100 North over Six Mile Creek, Rush County, Indiana

Dear Property Owner(s):

The Rush County Board of Commissioners has selected Butler, Fairman and Seufert, Inc., to survey and design the referenced project. Courthouse records show that you are a property owner within the limits of the area where data will be collected for the project survey. It may be necessary for our employees to enter your property to complete this work. If you have sold this property, or it is occupied by someone else, please let us know the name and address of the new owner or current occupant so we can contact them about the survey.

At this stage, we generally do not know what effect, if any, our project can eventually have on your property. If we determine later that your property is involved, we will contact you with additional information.

The survey work will include mapping the location of features such as trees, buildings, fences and drives, and obtaining ground elevations. The survey is needed for the proper planning and design of this bridge project. Please be assured of our sincere desire to cause you as little inconvenience as possible during this survey. If problems do occur, please contact our field crew or contact me at the telephone number or address shown above or the included e-mail address.

Sincerely,

BUTLER, FAIRMAN and SEUFERT, INC.

Mark W. Neal, P.S.
mneal@bfsengr.com

MWN:sc

Appendix H

Air Quality

Indiana Department of Transportation (INDOT)

State Preservation and Local Initiated Projects FY 2018 - 2021

SPONSOR	CONTRACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Estimated Cost left to Complete Project*	PROGRAM	PHASE	FEDERAL	MATCH	2018	2019	2020	2021
Rush County																	
Rush County	1500289	Init.	VA VARI	Bridge Inspections	Countywide Bridge Inspection and Inventory Program for Cycle Years 2017-2020	Greenfield	0	STP		Local Bridge Program	PE	$121,819.99	$0.00	$17,331.05	$88,489.36	$15,999.58	
										Local Funds	PE	$0.00	$30,454.90	$4,332.76	$22,122.34	$3,999.80	
Rush County	1802927	A 41	IR 5000	Bridge Replacement	Rush County Bridge 155 on CR 450 South over Branch of Little Flatrock River	Greenfield	.22	STPBG	$1,605,000.00	Local Funds	PE	$0.00	$58,000.00			$58,000.00	
										Local Bridge Program	PE	$232,000.00	$0.00			$232,000.00	
Comments:NO MPO - Add FY 20 PE Federal 232,000 and Local 58,000.																	
Rush County	1802929	A 41	IR 4940	Bridge Replacement	Rush County Bridge No. 1 on CR 1100 N over Six Mile Creek	Greenfield	.16	STPBG	$1,990,000.00	Local Funds	PE	$0.00	$69,000.00			$69,000.00	
										Local Bridge Program	PE	$276,000.00	$0.00			$276,000.00	
Comments:NO MPO - Add FY 20 PE Federal 276,000 and Local 69,000.																	
Indiana Department of Transportation	35450 / 1006266	Init.	US 52	Bridge Deck Overlay	5.46 W SR 44 over Mud Creek.	Greenfield	0	STP		Bridge Construction	CN	$622,742.40	$155,685.60				$652,805.00
Indiana Department of Transportation	35450 / 1006266	A 06	US 52	Bridge Replacement, Other Construction	5.46 W SR 44 over Mud Creek.	Greenfield	0	STP	$2,340,391.00	Bridge Consulting	PE	$147,520.00	$36,880.00	$184,400.00			
Comments:No MPO. Amendment to add $184,400 of PE to FY 18 via amendment 18-06.																	
Indiana Department of Transportation	35450 / 1006266	A 13	US 52	Bridge Replacement, Other Construction	5.46 W SR 44 over Mud Creek.	Greenfield	0	STP	$2,340,391.00	Bridge Construction	CN	$1,202,550.40	$300,637.60				$1,503,188.00
Comments:NO MPO, Amendment to add $1,503,188 CN to FY2021 for CN total of $2,155,991 based on estimate for project scope																	
Rush County	38031 / 1400766	Init.	IR 1013	Bridge Rehabilitation Or Repair	Br#138 carrying County Road 715 W over Mud Creek	Greenfield	.12	STP		Local Bridge Program	CN	$612,000.00	$0.00	$612,000.00			
										Local Funds	CN	$0.00	$153,000.00	$153,000.00			
Rushville	38033 / 1400772	M 19	ST 1020	New Road Construction	From Conrad-Harcourt Way north approximately 2,800 feet	Greenfield	.53	STPBG	$4,322,960.00	Group III Program	CN	$3,418,400.00	$0.00			$3,418,400.00	
										Local Funds	CN	$0.00	$904,560.00			$904,560.00	
Comments:NO MPO - Move CN funding from FY 19 to FY 20. Increase Local CN to 904,560 and increase of 49,920. Federal amount stays the same.																	
Rushville	38033 / 1400772	M 20	ST 1020	New Road Construction	From Conrad-Harcourt Way north approximately 2,800 feet	Greenfield	.53	STPBG	$4,322,960.00	Group III Program	CN	$0.00	$0.00		($3,418,400.00)		$3,418,400.00
										Local Funds	CN	$0.00	$0.00		($904,560.00)		$904,560.00
Comments:NO MPO - Moving CN from FY 19 to FY 21																	
Rushville	38033 / 1400772	Init.	ST 1020	New Road Construction	From Conrad-Harcourt Way north approximately 2,800 feet	Greenfield	.53	STP		Local Funds	RW	$0.00	$127,640.00	$127,640.00			

*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

Indiana Department of Transportation (INDOT)
State Preservation and Local Initiated Projects FY 2020 - 2024

SPONSOR	CONTRACT # / LEAD DES	STIP NAME	ROUTE	WORK TYPE	LOCATION	DISTRICT	MILES	FEDERAL CATEGORY	Estimated Cost left to Complete Project*	PROGRAM	PHASE	FEDERAL	MATCH	2020	2021	2022	2023	2024
Indiana Department of Transportation	41505 / 1702904	Init.	SR 3	Bridge Deck Overlay	OVER LITTLE BLUE RIVER, 4.8 1 S US 40	Greenfield	0	NHPP		Bridge Construction	CN	$601,640.00	$150,410.00				$752,050.00	
										Bridge ROW	RW	$24,000.00	$6,000.00		$30,000.00			
Indiana Department of Transportation	41505 / 1702904	A 04	SR 3	Bridge Deck Overlay	OVER LITTLE BLUE RIVER, 4.8 1 S US 40	Greenfield	0	NHPP	$911,490.00	Bridge Consulting	PE	$103,552.00	$25,888.00	$129,440.00				
Comments:Adding PE Phase																		
Indiana Department of Transportation	41506 / 1702912	Init.	US 52	Bridge Replacement, Other Construction	OVER HODGES BRANCH, 00.7 3 miles W of SR 44	Greenfield	0	NHPP		Bridge Construction	CN	$849,776.80	$212,444.20				$1,062,221.00	
										Bridge Consulting	PE	$168,000.00	$42,000.00	$210,000.00				
										Bridge ROW	RW	$64,000.00	$16,000.00		$80,000.00			
Indiana Department of Transportation	41857 / 1802052	Init.	SR 44	Bike/Pedestrian Facilities	Curb Bump Outs SR 44 at Perkins Rd. Rushville	Greenfield	0	STPBG		Safety Construction	CN	$132,800.00	$33,200.00			$166,000.00		
Indiana Department of Transportation	41857 / 1802052	A 04	SR 44	Bike/Pedestrian Facilities	Curb Bump Outs SR 44 at Perkins Rd. Rushville	Greenfield	0	Safety	$176,000.00	Safety Consulting	PE	$78,240.00	$19,560.00	$97,800.00				
Comments:Adding PE to the project																		
Indiana Department of Transportation	42031 / 1901370	A 01	SR 244	Slide Correction	At North Branch Clifty Creek, S Side Roadway, 4.79 mi East SR 3	Greenfield	0	STBG	$215,614.00	District Other Construction	CN	$88,491.20	$22,122.80	$10,000.00	$100,614.00			
										District Other Consulting	PE	$80,000.00	$20,000.00	$100,000.00				
										District Other ROW	RW	$4,000.00	$1,000.00	$5,000.00				
Comments:New Project																		
Rush County	42073 / 1802929	A 01	IR 4940	Bridge Replacement	Rush County Bridge No. 1 on CR 1100 N over Six Mile Creek	Greenfield	.16	STPBG	$2,196,360.00	Local Funds	PE	$0.00	$41,272.00	$41,272.00				
										Local Funds	RW	$0.00	$20,000.00			$20,000.00		
										Local Funds	CN	$0.00	$378,000.00					$378,000.00
										Local Bridge Program	PE	$165,088.00	$0.00	$165,088.00				
										Local Bridge Program	RW	$80,000.00	$0.00			$80,000.00		
										Local Bridge Program	CN	$1,512,000.00	$0.00					$1,512,000.00
Comments:NO MPO - Add PE FY 20 Federal 165,088 and Local 41,272, Add RW FY 22 Federal 80,000 and Local 20,000, Add CN FY 24 Federal 1,512,000 and Local 378,000.																		

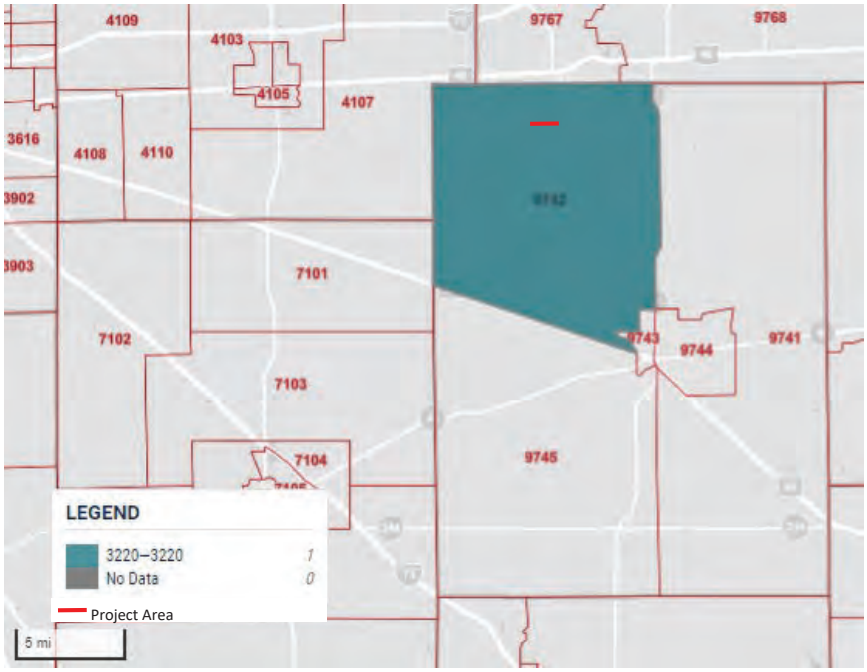
*Estimated Costs left to Complete Project column is for costs that may extend beyond the four years of a STIP. This column is not fiscally constrained and is for information purposes.

Appendix I

Additional Studies

Environmental Justice Analysis
for Rush County Bridge 1 carrying CR 1100 North over Six Mile Creek
Des. No. 1802929, Rush County, IN

Project Description: The Rush County Board of Commissioners, with funding from the Federal Highway Administration, proposes the replacement of Rush Co. Bridge 1 carrying County Road (CR) 1100 North over Six Mile Creek. The need for the project is due to the deteriorating condition of Rush Co. Bridge 1, as evidenced from the most recent INDOT Bridge Inspection, dated May 14, 2019, where the structure was given an overall sufficiency rating of 47.2 due to advanced deterioration. The purpose of the project is to address the condition of the bridge in order to perpetuate vehicular traffic on CR 1100N over Six Mile Creek. The proposed project would replace the existing bridge over Six Mile Creek as well as realign the bridge to the north to improve the safety of the intersection of CR 1100 N. and CR 900 W. The replacement bridge would have an overall length of 135 ft. and a clear roadway width of 28 ft. The project requires the acquisition of approximately 3.5 acres of permanent right-of-way. Proposed right-of-way widths along CR 1100N would be approximately 50 ft. from centerline. The approximate existing right-of-way is 8.5 ft. each side of centerline throughout the project area. The project limits would be approximately 1350 ft. in length along CR 1000 N. The preferred maintenance of traffic would be a road closure with a detour.



Rush County
Affected Community (AC)

Environmental Justice Analysis
for Rush County Bridge 1 carrying CR 1100 North over Six Mile Creek
Des. No. 1802929, Rush County, IN

Rush County
Community of Community (COC)

				COC Rush County	AC 1 Census Tract 9742, Rush County, Indiana	Census Tract 9743, Rush County, Indiana	Census Tract 9744, Rush County, Indiana	Census Tract 9741, Rush County, Indiana	Census Tract 9745, Rush County, Indiana
					Estimate	Estimate	Estimate	Estimate	Estimate
Total:	Total:			9052	3,220	3,534	2,636	2,882	4,173
	Total:	Income in the past 12	Income in the past 12 months below pover	1443	536	624	430	389	828
			Percent Low Income	15.94%	16.65%	17.66%	16.31%	13.50%	19.84%
			125 % of COC	19.93%	*AC< 125% of COC*				
			Potential Population of EJ Concern?		**No**				

				COC Rush County	AC 1 Census Tract 9742, Rush County, Indiana	Census Tract 9743, Rush County, Indiana	Census Tract 9744, Rush County, Indiana	Census Tract 9741, Rush County, Indiana	Census Tract 9745, Rush County, Indiana
					Estimate	Estimate	Estimate	Estimate	Estimate
Total:	Total:			16704	3,220	3,579	2,818	2,893	4,194
Not Hispanic or Latinc	Total:	Not Hispanic or Latinc		16438	3,158	3,502	2,740	2,885	4,153
White alone	Total:	Not Hispanic or Latinc	White alone	16006	3,132	3,472	2,483	2,803	4,116
Black or African Amer	Total:	Not Hispanic or Latinc	Black or African Amer	257	0	0	257	0	0
American Indian and A	Total:	Not Hispanic or Latinc	American Indian and A	0	0	0	0	0	0
Asian alone	Total:	Not Hispanic or Latinc	Asian alone	21	0	0	0	0	21
Native Hawaiian and C	Total:	Not Hispanic or Latinc	Native Hawaiian and C	0	0	0	0	0	0
Some other race alone	Total:	Not Hispanic or Latinc	Some other race alone	16	0	0	0	0	16
Two or more races:	Total:	Not Hispanic or Latinc	Two or more races:	138	26	30	0	82	0
Two races including S	Total:	Not Hispanic or Latinc	Two or more races:	0	0	0	0	0	0
Two races excluding S	Total:	Not Hispanic or Latinc	Two or more races:	138	26	30	0	82	0
Hispanic or Latino:	Total:	Hispanic or Latino:		266	62	77	78	8	41
White alone	Total:	Hispanic or Latino:	White alone	217	62	62	44	8	41
Black or African Amer	Total:	Hispanic or Latino:	Black or African Amer	7	0	0	7	0	0
American Indian and A	Total:	Hispanic or Latino:	American Indian and A	0	0	0	0	0	0
Asian alone	Total:	Hispanic or Latino:	Asian alone	0	0	0	0	0	0
Native Hawaiian and C	Total:	Hispanic or Latino:	Native Hawaiian and C	0	0	0	0	0	0
Some other race alone	Total:	Hispanic or Latino:	Some other race alone	30	0	6	24	0	0
Two or more races:	Total:	Hispanic or Latino:	Two or more races:	12	0	9	3	0	0
Two races including S	Total:	Hispanic or Latino:	Two or more races:	12	0	9	3	0	0
Two races excluding S	Total:	Hispanic or Latino:	Two or more races:	0	0	0	0	0	0
			Number Non-White Minority	698	88	107	335	90	78
			Percent Non-White Minority	4.18%	2.73%	2.99%	11.89%	3.11%	1.86%
			125 % of COC	5.22%	3.42%	3.74%	14.86%	3.89%	2.32%
			Potential Population of EJ Concern?		***AC<125% of COC***				
					No				

NOTE: SEE PAGE I-6 FOR AN ENLARGEMENT OF THE TEXT.

Note: This is a modified view of the original table produced by the U.S. Census Bureau.

Note: This download or printed version may have missing information from the original table.

HISPANIC OR LATINO ORIGIN BY RACE

Survey/Program:
American Community Survey
Universe:
Total population
Year:
2018
Estimates:
5-Year
Table ID:
B03002

Source: U.S. Census Bureau, 2018 American Community Survey 1-Year Estimates

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

While the 2018 American Community Survey (ACS) data generally reflect the July 2015 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas, in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineations due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:
- An "**" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
- An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.
- An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.
- An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.
- An "***" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
- An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
- An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
- An "(X)" means that the estimate is not applicable or not available.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

	Census Tract 9741, Rush County, Indiana	Census Tract 9742, Rush County, Indiana	Census Tract 9743, Rush County, Indiana	Census Tract 9744, Rush County, Indiana	Census Tract 9745, Rush County, Indiana
	Estimate	Estimate	Estimate	Estimate	Estimate
Total:	2,893	3,220	3,579	2,818	4,194
Not Hispanic or Latino:	2,885	3,158	3,502	2,740	4,153
White alone	2,803	3,132	3,472	2,483	4,116
Black or African American alone	0	0	0	257	0
American Indian and Alaska Nativ	0	0	0	0	0
Asian alone	0	0	0	0	21
Native Hawaiian and Other Pacific	0	0	0	0	0
Some other race alone	0	0	0	0	16
Two or more races:	82	26	30	0	0
Two races including Some other	0	0	0	0	0
Two races excluding Some othe	82	26	30	0	0
Hispanic or Latino:	8	62	77	78	41
White alone	8	62	62	44	41
Black or African American alone	0	0	0	7	0
American Indian and Alaska Nativ	0	0	0	0	0
Asian alone	0	0	0	0	0

Native Hawaiian and Other Pacific	0	0	0	0	0
Some other race alone	0	0	6	24	0
Two or more races:	0	0	9	3	0
Two races including Some other	0	0	9	3	0
Two races excluding Some othe	0	0	0	0	0

United States Census Bureau

Note: This is a modified view of the original table produced by the U.S. Census Bureau.

Note: This download or printed version may have missing information from the original table.

HISPANIC OR LATINO ORIGIN BY RACE

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

While the 2018 American Community Survey (ACS) data generally reflect the July 2015 Office of Management and Budget (0MB) delineations of metropolitan and micropolitan statistical areas, in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the 0MB delineations due to differences in the effective dates of the geographic entities.

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An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution . An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

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NOTE: SEE PAGE I-9 FOR AN ENLARGEMENT OF THE TEXT.

Note: This is a modified view of the original table produced by the U.S. Census Bureau.

Note: This download or printed version may have missing information from the original table.

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Survey/Program:
American Community Survey
Universe:
Population for whom poverty status is determined
Year:
2018
Estimates:
5-Year
Table ID:
B17001

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

For more information on understanding race and Hispanic origin data, please see the Census 2010 Brief entitled, Overview of Race and Hispanic Origin: 2010 , issued March 2011. (pdf format)

While the 2014-2018 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

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Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

	Census Tract 9741, Rush County, Indiana	Census Tract 9742, Rush County, Indiana	Census Tract 9743, Rush County, Indiana	Census Tract 9744, Rush County, Indiana	Census Tract 9745, Rush County, Indiana
	Estimate	Estimate	Estimate	Estimate	Estimate
Total:	2,882	3,220	3,534	2,636	4,173
Income in the past 12 month	389	536	624	430	828
Male:	148	241	240	143	388
Under 5 years	55	26	0	0	67
5 years	0	10	0	0	24
6 to 11 years	1	41	9	9	16
12 to 14 years	9	9	0	0	24
15 years	0	0	0	27	0
16 and 17 years	4	6	56	0	0
18 to 24 years	4	10	35	13	37
25 to 34 years	10	19	31	24	60
35 to 44 years	24	18	27	56	33
45 to 54 years	16	54	15	0	97
55 to 64 years	25	23	23	0	10
65 to 74 years	0	9	22	14	4

75 years and over	0	16	22	0	16
Female:	241	295	384	287	440
Under 5 years	9	13	0	35	49
5 years	0	10	0	0	19
6 to 11 years	8	24	123	26	52
12 to 14 years	0	0	26	0	9
15 years	0	9	0	0	38
16 and 17 years	8	8	0	0	43
18 to 24 years	72	11	28	34	38
25 to 34 years	43	33	37	12	67
35 to 44 years	11	30	56	0	8
45 to 54 years	30	37	34	47	72
55 to 64 years	34	52	31	46	34
65 to 74 years	0	51	10	38	0
75 years and over	26	17	39	49	11
Income in the past 12 month	2,493	2,684	2,910	2,206	3,345
Male:	1,357	1,395	1,456	911	1,759
Under 5 years	75	35	106	18	65

United States Census Bureau

Note: This is a modified view of the original table produced by the U.S. Census Bureau.

Note: This download or printed version may have missing information from the original table.

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates
of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

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an open-ended distribution. An "+" following a median estimate means the median

falls in the upper inte val of an open-ended distribution.

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the number of sample cases is too small. An "(X) " means that the estimate is not applicable or not available.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section. Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

REFER TO 2017 SPECIAL INSPECTION REPORT FOR IN-DEPTH DETAILS AND CONDITIONS OF RAILROAD CAR MEMBERS.

FLAKING RUST ON FLAT CARS, DECK PANEL AND BRACING. BENT 2 PILE NOT STRAIGHT. WEARING SURFACE CRACKED AND RUTTED.

REPLACE STRUCTURE IN 2021DUE TO ADVANCING DETERIORATION.

Excerpt taken from Indiana Department of Transportation Bridge Inspection Report dated May 14, 2019 written by Robert M. Coop

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN:	00059.0 FT
(49) STRUCTURE LENGTH:	00094.8 FT
(50) CURB/SIDEWALK WIDTHS:	
A) LEFT	00.0 FT
B) RIGHT:	00.0 FT
(51) BRDG RDWY WIDTH CURB-TO-CURB:	021.0 FT
(52) DECK WIDTH, OUT-TO-OUT:	022.5 FT
(32) APPROACH ROADWAY	017.0 FT
(33) BRIDGE MEDIAN:	0 - No median
(34) SKEW:	00 DEG
(35) STRUCTURE FLARED:	0 - No flare
(10) INV RTE, MIN VERT CLEARANCE:	99.99 FT
(47) TOT HORIZ CLEARANCE:	021.0 FT
(53) VERT CLEAR OVER BR RDWY:	99.99 FT
(54) MIN VERTICAL UNDERCLEARANCE:	
A) REFERENCE FEATURE:	N
B) MIN VERT UNDERCLEAR:	0 FT
(55) LATERAL UNDERCLEARANCE RIGHT:	
A) REFERENCE FEATURE:	N
B) MIN LATERAL UNDERCLEAR:	000.0 FT
(56) MIN LATERAL UNDERCLEAR ON LEFT:	000.0 FT

INSPECTIONS

(90) INSPECTION DATE:	05/14/2019
(92) CRITICAL FEATURE INSPECTION:	
A) FRACTURE CRITICAL REQUIRED/FREQUENCY:	N
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY:	N
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY:	Y 48
(91) DESIGNATED INSPECTION FREQUENCY:	24 MONTHS
(93) CRITICAL FEATURE INSPECTION DATE:	
A) FRACTURE CRITICAL DATE:	05/22/2013
B) UNDERWATER INSP DATE:	
C) OTHER SPECIAL INSP DATE:	05/23/2017

CONDITION

(58) DECK:	5 - Fair Condition (minor section loss)
(58.01) WEARING SURFACE:	4 - Poor Condition
(59) SUPERSTRUCTURE:	5 - Fair Condition (minor section loss)
(60) SUBSTRUCTURE:	5 - Fair Condition (minor section loss)
(61) CHANNEL/CHANNEL PROTECTION:	6 - Bank slump. widespread minor damage
(62) CULVERTS:	N - Not Applicable

CONDITION COMMENTS

(58) DECK: 5 - Fair Condition (minor section loss)

Comments:
FAIR-SURFACE RUST-SEEPAGE-FLAKING PAINT
Material: STEEL PLATES

(58.01) WEARING SURFACE: 4 - Poor Condition

Comments:
POOR-RUTTED-SEEPAGE
Material: 3” CHIP & SEAL

(59) SUPERSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:
FAIR-FLAKING RUST-PITTING-MINOR DEFLECTIONS
Material: TWIN STEEL RAILROAD FLATCARS

(60) SUBSTRUCTURE: 5 - Fair Condition (minor section loss)

Comments:
FAIR-RUST-FLAKING PAINT-SURFACE RUST ON PILES
Material: STONE ABUTMENTS-PILE BENTS

(61) CHANNEL/CHANNEL PROTECTION 6 - Bank slump. widespread minor damage

Comments:
SATISFACTORY-NO SCOUR-MINOR DRIFT AT BENT 2
Material: RIPRAP-VEGETATION

(62) CULVERTS: N - Not Applicable

Comments:
N/A Material: N/A

LOAD RATING AND POSTING

(31) DESIGN LOAD:	0 - Unknown	(66) INVENTORY RATING:	20
(70) BRIDGE POSTING	4 - 0.1-9.9% below legal loads (11-15 tons)	(65) INVENTORY RATING METHOD:	2 - Allowable Stress (AS)
(41) STRUCTURE OPEN/POSTED/CLOSED:	P - Posted for Load	(66B) INVENTORY RATING (H):	15
		(66C) TONS POSTED :	15
(64) OPERATING RATING:	25	(66D) DATE POSTED/CLOSED:	05/26/2015
(63) OPERATING RATING METHOD:	2 - Allowable Stress (AS)		

APPRAISAL

SUFFICIENCY RATING:	47.2	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	2	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	5	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	3	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: 6 - Occasional Overtopping of Approaches - Insignificant Delays
Comments:
APPEARS ADEQUATE

(72) APPROACH ROADWAY ALIGNMENT: 3 - Basically intolerable requiring high priority of corrective action
Comments:
FAIR-CRACKS-SETTLED Material: CHIP & SEAL
(72): SERIOUS-LEVEL-CURVE & INTERSECTION EAST

(113) SCOUR CRITICAL BRIDGES: 5 - Scour within limits of footing or piles
Comments:

Paint: ** Indicate if paint present , year painted & condition rating.*

1 - Steel Beams 3

Comments:

SERIOUS-PAINT FLAKING/FAILING-SURFACE RUST-PITTING

Scour Analysis: **Scour Critical:** **Scour POA?**

NBI 113 Scour Comment:

Endangered Species: ** If yes, add one photo to the dropdown field*

Bats: seen or heard under structure? * N - No evidence of bats

Birds/swallows/nests seen? Empty nests present? * N - No Birds and/or Nests Visi

BRIDGE Culvert Geometry:

Barrel Length:

Height:

Width:

1 PURPOSE OF REPORT

The purpose of this report is to document the engineering assessment phase of the project. This report includes relevant background data, analyses, conclusions, and recommendations at the preliminary level. The Abbreviated Engineering Assessment (AEA) will guide the ongoing environmental and succeeding design phases.

A preliminary field check for this project with INDOT was not held yet, since this a County Federal Aid Bridge Replacement project. The scope of work was discussed with Rush County before and after the awarding of this project for design to the Consultant.

2 PROJECT LOCATION

The project is located on County Road 1100 North over Six Mile Creek immediately west of the intersection with CR 900 West, specifically, in Sections 2, 3, 10, and 11, Township 15 North, Range 15 North within the United States Geological Survey Knightstown, Indiana Quadrangle. Project Location Maps are provided in the Appendix.

3 PROJECT NEED AND PURPOSE

The need for this project stems from the deteriorated condition of the bridge that has resulted from use over time. The bridge was originally constructed in 1910 and rehabilitated in 1992 and has deteriorated to the point where significant work is required to provide a safe crossing for County Road 1100 North over Six Mile Creek. It is in poor condition, with scouring and cracking throughout the structure. The wearing surface received a rating of 4, indicating poor condition, while the deck, superstructure, and substructure received a rating of 5, contributing towards the sufficiency rating of 47.2. The roadway leading up to the bridge from the east end has a curved alignment at the bridge causing sight distance issues, and the approach width is inadequate. See the Appendix for the Bridge Inspection Report.

The purpose of the project is to address the deteriorating condition of Rush County Bridge No. 1 and replacing it with a two-lane, three (3) span continuous concrete box beam bridge or a single span bulb t-beam structure; both would have an overall length of 135 ft.

4 EXISTING CONDITIONS

4.1 Bridge Structure

Original plans were not available for this structure. According to the Bridge Inspection Report, the structure was rehabilitated in 1992. There are no known repairs to the structure.

4.2.4 Pipe Structures and Roadway Drainage

There are no existing pipes within the project limits.

4.3 Right of Way

The existing roadway is 8.5 feet on either side of the roadway centerline.

4.4 Utilities

Butler, Fairman and Seufert, Inc. (BF&S) is responsible for all utility coordination associated with the project. Kent Seidel is the representative from BF&S that will be responsible for utility coordination. Initial Notices have been sent to the Utilities that were identified during the topographic survey. There are overhead electric lines throughout the project. It appears that there are AT&T and Rush-Shelby Energy aerial lines. Rush-Shelby Energy has overhead 3-phase 12kV electric parallel to the bridge in the southern right-of-way. AT&T has aerial copper facilities attached to Rush-Shelby Energy owned poles on the West side and their own pole with guy wires on the East side.

4.5 Land Use

The Southwest quadrant of the project consists of cultivated fields. Pasture has been identified in the Northwest quadrant. The Northeast and Southeast quadrants of the project consist of a wooded / overgrowth area.

5 TRAFFIC DATA AND SPEED STUDY

See Table 5.1 below for traffic data along County Road 1100 North at the location of the bridge. The traffic information including the percentage of commercial vehicles for 2019 was obtained from the 2019 Bridge Inspection Report. A one percent growth rate was assumed to calculate the AADT for 2024 and 2044. During a speed study, which was conducted by the Consultant on the secondary road (County Road 900 West) between July 17th and July 19th, 2020. 630 vehicles per day were counted during the three-day period. See the Appendix for the summary of the traffic data collection.

There is not a speed ordinance for County Road 1100 North. However, County Road 900 West has a speed ordinance in place for 45 mph. Since only incidental construction is being proposed on CR 900 West, the proposed speed is not a factor in the design.

Table 5.1: County Road 1100 North Traffic Data

Year:	AADT:	DHV:	Commercial Vehicles:
2017	672	NA	5 % of AADT
2024	720	NA	
2044	879	NA	

6 CRASH DATA

Per speaking with the County Highway Supervisor, there have been several incidents where vehicles have impacted the guardrail at the intersection near the bridge and one minor accident with the last several years.

7 DESIGN GUIDELINES

This segment of County Road 1100 North will follow the INDOT 3R Geometric Design Criteria for a two-lane Rural Local Road. The guidelines for a Rural Local Road are detailed in the Indiana Design Manual (IDM) Figure 55-3D. Table 7.1 below summarizes the minimum design criteria that should be used for this project. See Appendix for IDM Figure 55-3D.

Table 7.1 Minimum Design Guidelines for County Road 1100 North

Functional Classification:	Rural Local Road
Design Speed:	30 mph
Min. Travel Lane Width:	9 feet
Min. Paved Shoulder Width	2 feet
Min. Usable Shoulder Width	2 feet
Min. Bridge Clear Roadway Width	Travel way + 6 feet = 24 feet
Min. Stopping Sight Distance:	200 feet
Max. Grade:	10.0 percent
Structural Capacity	HL-93

A level one design criteria checklist will be completed for the Stage 1 submittal and will look at each design element to ensure that the minimum design criteria is met. It is not anticipated that there will be any level one design exceptions required for this project.

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Inspection Date: 04/10/2019
Asset Name: 70-00004
Facility Carried: CR 900W

Bridge Inspection Report

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN:	00029.0	FT
(49) STRUCTURE LENGTH:	00030.0	FT
(50) CURB/SIDEWALK WIDTHS:		
A) LEFT	00.0	FT
B) RIGHT:	00.0	FT
(51) BRDG RDWY WIDTH CURB-TO-CURB:	027.8	FT
(52) DECK WIDTH, OUT-TO-OUT:	028.3	FT
(32) APPROACH ROADWAY	022.0	FT
(33) BRIDGE MEDIAN:	0 - No median	
(34) SKEW:	00	DEG
(35) STRUCTURE FLARED:	0 - No flare	
(10) INV RTE, MIN VERT CLEARANCE:	99.99	FT
(47) TOT HORIZ CLEARANCE:	027.8	FT
(53) VERT CLEAR OVER BR RDWY:	99.99	FT
(54) MIN VERTICAL UNDERCLEARANCE:		
A) REFERENCE FEATURE:	N	
B) MIN VERT UNDERCLEAR:	0	FT
(55) LATERAL UNDERCLEARANCE RIGHT:		
A) REFERENCE FEATURE:	N	
B) MIN LATERAL UNDERCLEAR:	000.0	FT
(56) MIN LATERAL UNDERCLEAR ON LEFT:	000.0	FT

INSPECTIONS

(90) INSPECTION DATE:	04/10/2019
(92) CRITICAL FEATURE INSPECTION:	
A) FRACTURE CRITICAL REQUIRED/FREQUENCY:	N
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY:	N
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY:	N
(91) DESIGNATED INSPECTION FREQUENCY:	24 MONTHS
(93) CRITICAL FEATURE INSPECTION DATE:	
A) FRACTURE CRITICAL DATE:	
B) UNDERWATER INSP DATE:	
C) OTHER SPECIAL INSP DATE:	

CONDITION

(58) DECK:	6 - Satisfactory Condition (minor deterioration)	(60) SUBSTRUCTURE:	7 - Good Condition (some minor problems)
(58.01) WEARING SURFACE:	6 - Satisfactory Condition	(61) CHANNEL/CHANNEL PROTECTION:	7 - Bank protection needs minor repairs
(59) SUPERSTRUCTURE:	6 - Satisfactory Condition (minor deterioration)	(62) CULVERTS:	N - Not Applicable

CONDITION COMMENTS

(58) DECK: 6 - Satisfactory Condition (minor deterioration)

Comments:
SATISFACTORY-SEEPAGE
Material: 12" CONCRETE BOX & 18" CHANNEL BEAMS

(58.01) WEARING SURFACE: 6 - Satisfactory Condition

Comments:
SATISFACTORY-TRANSVERSE & LONGITUDINAL CRACKS
Material: 3" CHIP & SEAL

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Inspection Date: 04/10/2019
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Facility Carried: CR 900W

Bridge Inspection Report

(59) SUPERSTRUCTURE: 6 - Satisfactory Condition (minor deterioration)

Comments:
SATISFACTORY-DAMAGE AT GUARDRAIL CONNECTIONS-CRACKS-SPALLS
Material: 12" PRESTRESSED CONCRETE BOX & 18" PRECAST CHANNEL BEAMS

(60) SUBSTRUCTURE: 7 - Good Condition (some minor problems)

Comments:
GOOD-NO ISSUES NOTED
Material: CONCRETE ABUTMENTS

(61) CHANNEL/CHANNEL PROTECTION: 7 - Bank protection needs minor repairs

Comments:
GOOD-MINOR BANK EROSION
Material: NATURAL-STONES

(62) CULVERTS: N - Not Applicable

Comments:
N/A Material: N/A

LOAD RATING AND POSTING

(31) DESIGN LOAD:	5 - HS 20	(66) INVENTORY RATING:	36
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD:	1 - Load Factor (LF)
		(66B) INVENTORY RATING (H):	20
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66C) TONS POSTED :	
		(66D) DATE POSTED/CLOSED:	
(64) OPERATING RATING:	45		
(63) OPERATING RATING METHOD:	1 - Load Factor (LF)		

APPRAISAL

SUFFICIENCY RATING:	91.9	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	2	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	6	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	5	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: 6 - Occasional Overtopping of Approaches - Insignificant Delays

Comments:
APPEARS ADEQUATE

(72) APPROACH ROADWAY ALIGNMENT: 3 - Basically intolerable requiring high priority of corrective action

Comments:
SATISFACTORY-MINOR SETTLEMENT-CRACKS Material: CHIP & SEAL
(72): SERIOUS-IN REVERSE CURVE-OFFSET-'+' INT

(113) SCOUR CRITICAL BRIDGES: 5 - Scour within limits of footing or piles

Comments:
STABLE - WITHIN LIMITS